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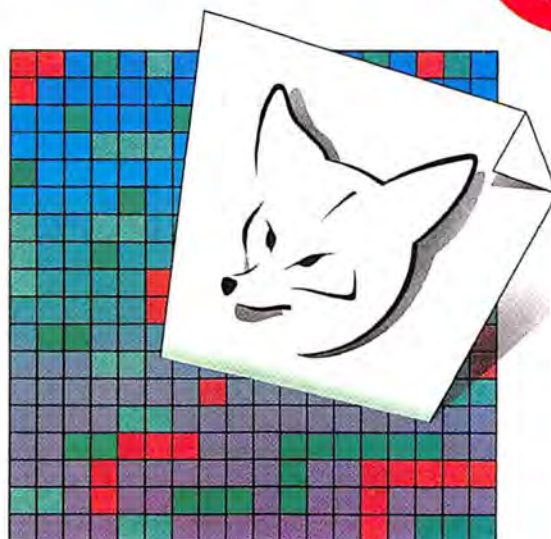
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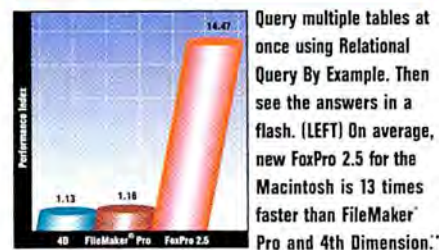
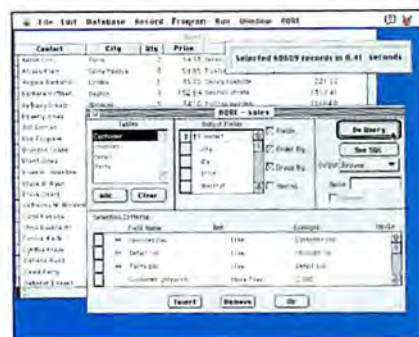
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The price will make your day, too. Only \$99** for a limited time.

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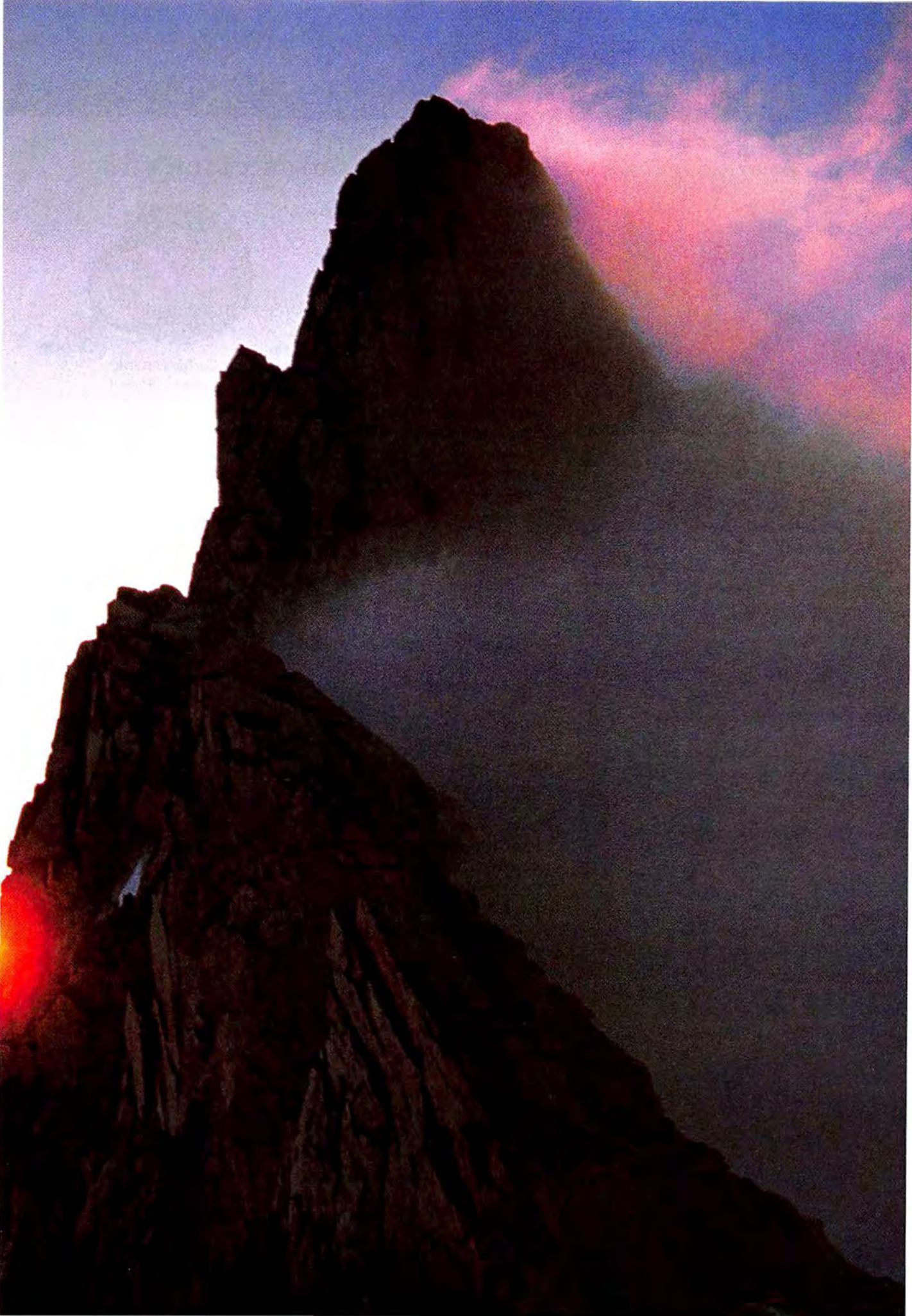
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ONE DAY WITH THE
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Cover photo / GIAMPIERO BENVENUTI

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COVER STORY

The 9th Annual Editors' Choice Awards

It's time again to offer our annual salute to the year's best and brightest Mac products.

This year, as usual, the competition was fierce, with hundreds of exceptional products vying for the coveted Eddy awards. Picking the winners in more than 36 categories is never easy, but we think you'll be pleased with the results.

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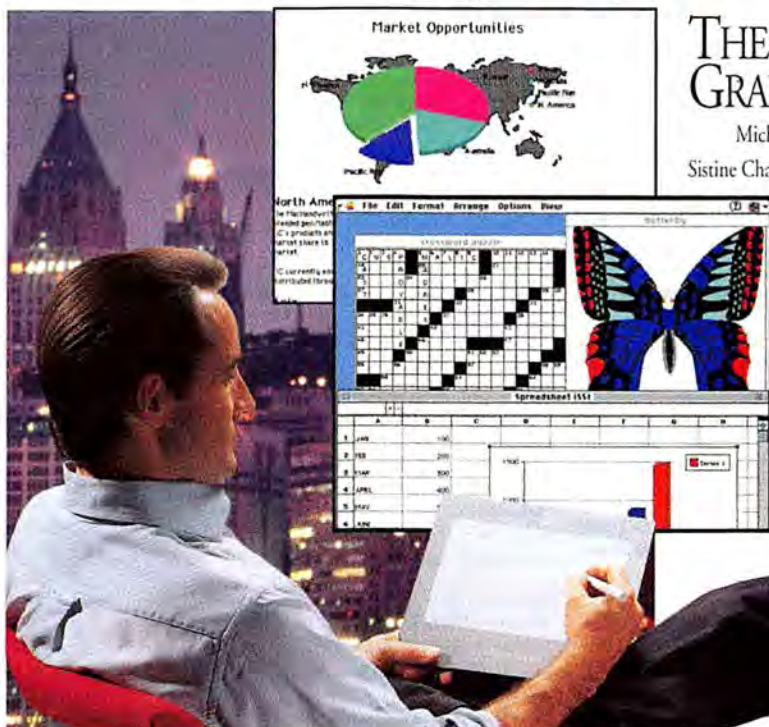
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and **Derek van Alstyne 1967 - 1989**

The Apple Report On PowerPC

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For more information about Macintosh with PowerPC, call 1-800-732-3131, ext.150, in the U.S. We'll send you a copy of our informative, free booklet, "PowerPC Technology: The Power Behind the Next Generation of Macintosh Systems." If you're reading this in Canada, call 1-800-665-2775, ext. 910.

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The new HP DeskWriter 310 printer.

Desk



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DESKTOP TO GO.

OFFICE:

When selecting a printer for the office the most important factor to consider is print quality. In the office, producing clear, sharp professional looking output is more than a luxury, it's a necessity. Another factor to consider is the amount of space the printer will take up on your desktop.



CLIENTS:

Business travelers often find themselves called upon to take care of important details while visiting the client's office. When that occurs, it's best to have immediate access to as many resources as possible. Be sure that you have at your home office a printer that will work with your personal files that they can quickly find anything you need. A portable computer can be a highly effective way to store a wealth of files in a compact unit that can be accessed easily.

HOTEL:

A hotel can be a very peaceful, distraction free environment for getting work done. And, since many hotels cater almost exclusively to business travelers, you'll find they are usually well equipped to assist you with all your business travel needs. Carry machines, fax machines and, in some hotels, personal computers are available to help you get your work done when separated from the conveniences of the home office.

HOME:

For one reason or another it's sometimes impossible to avoid having to bring work home. It can really drive you crazy only to find out on the day to finish all your work while at the office. On the other hand, some people prefer the environment of home when working on certain tasks. Whether it's book keeping or a word processing, it's important to have the equipment and space you need at home to get work done.



optional.



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Hewlett-Packard is proud to present the DeskWriter printer that doesn't require a desk. The HP DeskWriter 310 is small and light enough to let you print anywhere. At the office, at home or on the road. And it gives you sharp, 300-dpi print quality, in black & white or color.

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

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

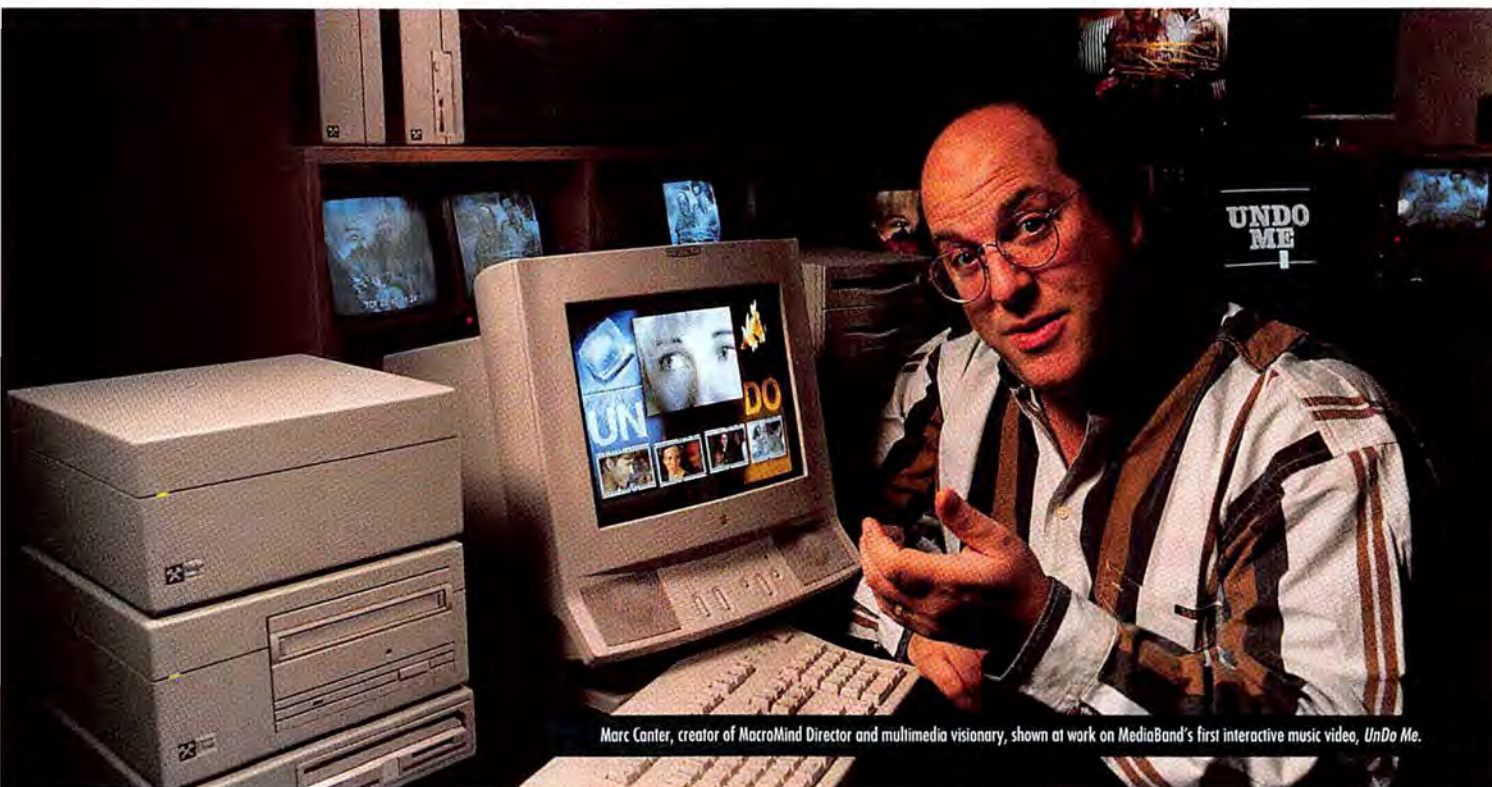
HP has managed to fit everything you could want into a little printer package. To see for yourself, look in the Yellow Pages, or call 1-800-552-8500, Ext. 7857 for the name of the HP dealer nearest you.

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Marc Canter, creator of MacroMind Director and multimedia visionary, shown at work on MediaBand's first interactive music video, *UnDo Me*.

Apply The Hammer.SM

11MB/sec and 13MB/sec on the Quadra[®] 840AV. Are the industry's fastest sustained transfer rates the only reason multimedia visionary, Marc Canter, chose the new SledgeHammer[™] II and SledgeHammer Wide arrays from FWB? No. Capacities of up to 5.6 gigabytes were important. And his other SledgeHammers got top marks from him, as they had from MacWEEK, MacUser and Macworld. But for his new MediaBand digital music video projects, the measure he applied first was RAID speed. That's why he applied the Hammer.[®]

But applying the Hammer means more for *anyone* with *any* Mac looking for a RAID solution. There are

- ❑ high speed optical and SyQuest[®] solutions for nearline and offline storage.
- ❑ the recently Eddy-nominated SCSI JackHammer[™] accelerator card (for Best New Storage System) that can increase system performance up to 700%.
- ❑ the number one selling RAID ToolKit[™] software.
- ❑ FWB's PremiumService[™] warranty, and pricing that crunches the competition like SledgeHammers crunch data.



So, whether you need RAID to help build your next digital video empire or your first desktop color publishing enterprise, here's what to do: Apply The Hammer. Call 415.474.8055 for the name of the reseller nearest you.

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LETTERS

Unabashed Plug

WHEN I GET MY *MacUser* in the mail, I find two things indispensable:

The Letters department, where I get the real story from users in the trenches. I think you could expand the letters section 300 percent and it would be a hit.

Andy Ihnatko's column, which is both incisive and timely on most things Mac. Andy stands out like a beacon of sanity, an actual human being writing about important issues, with a wry twist of sarcasm.

Lex Kontrovitz
via ZiffNet/Mac

Intel Inside?

I JUST READ with amazement, amusement, indignation, and ultimately frustration the Intel ad in *MacUser* (November '93, page 32). I was amazed because Intel was actually advertising its products in the kingdom of Motorola. I was amused because the sales pitch was for Mac users to change to Intel-based machines (read: Windows). And I was indignant and frustrated because Intel is throwing out the same old sales pitch: Come over to our side, because we have everything: more programs, more machines, faster CPUs. Everything except, of course, an operating system as slick as the Mac's.

It seems to me that a wiser use of Intel's resources would be to spend dollars trying to get Intel inside of a Mac, rather than trying to get Mac users to move outside to Intel.

Bruce J. Villere
Sierra Vista, AZ

Write to Letters

c/o *MacUser*
950 Tower Lane
18th Floor
Foster City, CA 94404

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

I AM SORELY disappointed by your decision to run an Intel advertisement. The ad tells consumers to become IBM-compatible users. Uh, hello there, powers that be! Talk about cutting off the hand that feeds you!

If Mac users switch platforms, *MacUser* will lose them as readers. Thus, they begin using Intel-based machines and ultimately destroy their inherent creativity and individuality by staring continuously at a certain GUI-wannabe made by Microsoft. This drain of talent will eventually lead to the breakdown of our country and, finally, the utter collapse of the entire universe. So, please, please, please, don't run any more ads like that.

Nick Hodulik
via CompuServe

IT IS SURELY a backhanded compliment for a Mac-specific publication to be chosen for Intel ads targeting Mac users. However, when it comes to the copy, Intel's ad agency seems to be less intelligent.

One Intel ad had a list of applications that have versions for Intel as well as Mac platforms. The caption for the list says, "With an Intel-based PC, you can still run all your favorite Macintosh applications," which implies that you can run the same programs on a PC as you can on a Macintosh. Well, they might have the same name, but they are not the same applications — you would have to buy them all again. Mistakes such as this are not likely to win many converts to the PC cause.

But then, *Intel* is not even half of *Intelligent*, is it?

Richard G. Elen
Somerset, U.K.

I FIND IT HILARIOUS that Intel put an ad in this magazine pleading with Mac users to join its platform. The ad seems to be an act of desperation! Intel apparently feels (as I do) that the PowerPC will pose a significant threat to Intel's dominance in personal-computer processors. As for the company's



OPEN FOLDER

Has the Newton made penmanship fashionable again? We thought so, after receiving an unusually high number of handwritten letters recently. "No! Not everything I do is on the computer!" writes J. (or is it G? L?) Gamauf, of Minneapolis, Minnesota, before complaining about vendors who charge too much for upgrades. Mark H. Lawrence, of Barnstable, Massachusetts, penned a note of appreciation: "My *MacUser* subscription is educating me for buying our family's first Mac." Herbert W. Haas, of Las Cruces, New Mexico, just scrawled, "HELP! I don't know how to use my Mac, and there's no one close by who can teach me." And M. Carlsson, of Philadelphia, Pennsylvania, scribbled, "I wrote this letter by hand on purpose. I like a nice pen, even if my handwriting isn't perfect." Suddenly, we have a lot more sympathy for the Newton's handwriting-recognition software.

Timothy C. Grant, of Phoenixville, Pennsylvania, questions our pumped-up prose, citing our descriptions of the Centris 610 as looking like "an LC on steroids" ("Mainstream Marvels," April '93, page 106) and of the Performa 550 as being like "a Color Classic on steroids" ("And Then There Were 4," December '93, page 92). It was funny at first, Timothy says, but "Does the Performa 550 have a tendency to die young? Does it have physical deformations unnatural for a Mac? Does it have a shrunken mouse? Please don't portray harmful drugs in a positive light."

From pumped-up prose to a pumped-up nose, Joseph M. Pignato, of Hoboken, New Jersey, takes issue with what he considers to be unflattering stereotypes in a satirical newsletter shown in a screen shot in the December issue (page 56). "As an Italian-American, I am offended by the depiction of a superstition-steeped Italian clairvoyant (Signora Broccoli)." He's also upset by the phony ad that shows what appears to be an African-American (it isn't — the man is Caucasian) using a Mini Nose Inflator. No offense meant, Joseph. The Signora Broccoli item is an actual handbill from Toronto.

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FROM THE ORIGINAL
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CIRCLE 60 ON READER SERVICE CARD

AS POTENTIAL POWERPC BUYERS, we have been declared enemy No. 1 by Intel. PowerPC Macs today mean PowerPC Windows machines tomorrow.

invitation to embrace the old technology of complex-instruction-set computing (CISC) rather than the promising future of reduced-instruction-set computing (RISC), thanks, but no thanks.

Alan Thurman
via ZiffNet/Mac

WHAT MAKES INTEL so eager to convert Mac users? PowerPC.

We, as potential PowerPC buyers, have been declared enemy No. 1 by Intel. This isn't a sign of Intel trying to squeeze a little more profit out of the computer market; it's a last-ditch effort to slow, if not stop, the spread of PowerPC chips. PowerPC Macs today mean PowerPC Windows machines tomorrow!

Intel is going down, but the Mac is going to survive this transition and come out of it in a stronger position than ever.

Nathanael Henderson
Springfield, MO

Slipped Discs

AS ONE OF THE PEOPLE behind Iron Helix, I applaud MacUser's commitment to the CD-ROM market. Although other magazines are merely playing lip service to what they perceive as a buzzword, MacUser has been there from the beginning as a supporter of CD-ROM developers and their products. However, in your recent feature "The Top 50 CD-ROMs" (November '93, page 90), you missed an important concept about reviewing entertainment products.

It's inappropriate to rank games, encyclopedias, children's books, and documentaries in one list. In the future, these products should be grouped and compared by their content and technical achievement.

Content and its presentation need to be critiqued with the same rigor used in reviewing other products. One editor, commenting about a CD-ROM game, wrote, "Other games may have prettier graphics and more-cohesive story lines, but Lunicus succeeds because it moves you through a 3-D environment quickly." In other words, plot and imagery don't matter; it's speed that

counts. That's like saying *Citizen Kane* and *Casablanca* have great cinematography and well-written scripts but *Demolition Man* is a better film because it has a faster pace.

With the growing popularity of cartridge games and violent action films, one has to ask if the 22-minute sitcom, the 30-second commercial, and the MTV-style of quick-cut editing have all but destroyed the art of storytelling. Fortunately, it has not. CD-ROMs such as *From Alice to Ocean*, *The Journeyman Project*, and *Hell Cab* deserve higher ratings. Their creators are pioneers, taking advantage of the storage capabilities of CD-ROM to provide vast quantities of information intelligently.

Vinny Carrella
Drew Pictures, San Francisco, CA

THE SHEER, UNABASHED greatness of Andy Ihnatko notwithstanding, MacUser does have a tendency to get me cheesed off now and again.

In "The Top 50 CD-ROMs," the placement of *A Hard Day's Night* at No. 1 promised that this was going to be a truly inspired list and not one of those collections of random criticism. My leaping heart soon sank when I saw the rank given to Iron Helix. How does an outstanding, well-crafted piece of work get nudged out of the top ten by the likes of *Criterion Goes to the Movies*, which is merely a gigabyte worth of commercials for Criterion laserdiscs?

I wish there were more CD-ROM titles available, period. It seemed the 50 best were about the only 50 available. I just hope that visionary artists don't get frustrated and disgusted with criticism about access times and don't decide to discontinue making CD-ROMs for the Mac.

Rob Bartlett
via CompuServe

Love Notes

YOUR ARTICLE "Lotus Notes: Who Needs It" (November '93, page 179) is overly critical of one of the most effective productivity tools of the last decade. Lotus Notes is more than its three basic functions (work-flow

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Poor Claris. Once again, Canvas™ is running circles around MacDraw® Pro. In fact, they are still trying to catch up to Canvas 3 while we've added dozens of new features and enhancements to create Canvas 3.5. Like 3-D extrusions of text and graphics, enveloping of text and graphics, smart lines, fine kerning, fractals, automatic concentric circles and spirals, and a tool loader that allows you to add tools as you work. There's even a versatile pressure-sensitive freehand Bézier pen tool. And Canvas 3.5 has really outdone itself with new improvements including object blends, binding of text to shapes and curves, Bézier text conversions, and macro windows. Which is just the beginning, because Canvas also includes all the great features of 3.0 like custom parallel lines and curves, our unique SmartMouse™, and more. Comparing Canvas to the competition is like comparing a superbike to a tricycle. And only Canvas is self-upgrading, allowing you to add new tools, effects and file translators at will. Last but not least, while MacDraw Pro is idling somewhere back in the Dark Ages, Canvas features seamless file sharing with its recently released Windows version. Add it all up, and it's

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easy to see that it's time to shift gears to ultimate in value and performance, Canvas of your life. So go ahead and hop on.

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CIRCLE 165 ON READER SERVICE CARD



MAC UP
GERMANY, 1992



MACWORLD
AUSTRALIA, 1992



MACWEEK
DIAMOND AWARD, JAN '93



SYM MAC
1992



MACWORLD
SEPT 1993



MACUSER
MAR '90, MAR '92



MACWORLD
1993



MACUSER
APRIL '90, JAN '92



MACWEEK
TARGET AWARD, JAN '93



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CIRCLE 44 ON READER SERVICE CARD

management, database capabilities, and communications) — it is an information-sharing tool that has a positive impact on a company's culture, information processing, and efficiency. In fact, it is unfair to describe Notes as a combination of its parts.

I do agree with one aspect of the article: A Notes installation must be well thought out, starting with a pilot project and taking into consideration political, technical, security, and connectivity issues. Going it alone is tough.

Dan Tyre
Needham, MA

Ambassador Goodwill

I WAS DISAPPOINTED to see a large part of the review of our software Ambassador (December '93, page 89) devoted to a less-than-accurate description of the characteristics of Apple's Macintosh Japanese Language Kit and KanjiTalk. The Macintosh Japanese Language Kit requires a minimum of 4 megabytes of RAM, not 5 megabytes, as was stated in the review, and it can be installed in as little as 2 megabytes of hard-disk space, not "20 megabytes or more." Twenty megabytes are required only if the two TrueType fonts included in the Macintosh Japanese Language Kit are installed.

The review also cited the time it takes to print a Japanese document as a "drawback" of Ambassador. Our software is not responsible for this behavior; the same delay occurs with every application when you're printing Japanese characters on a printer without resident Japanese fonts.

Glenn Akers, president
Language Engineering Corp., Belmont, MA

/ Ambassador does what it says it will do, as the review described. However, we felt that potential users would also benefit from the bigger picture: that many more megabytes of hard-disk space, plus KanjiTalk or WorldScript, are needed if you want to see what you've written or if you want to print a letter to fax or send; that it does take time to download Kanji characters to printers without resident fonts; and that, even though 4 megabytes of RAM is a minimum requirement, the documentation for the Macintosh Japanese Language Kit says "5 megabytes or more are recommended." / MB

ZDeal with ZMac

I AM A LONG-STANDING Macintosh user, and I have subscribed to your magazine for several years. Recently, however, I have

grown concerned over your constant pushing of ZiffNet/Mac. I think I speak for most *MacUser* readers when I say, "We are aware of ZiffNet/Mac. We just don't want to pay for CompuServe." I would be happy to join ZiffNet/Mac if I could do so without paying for CompuServe. Because I have Internet access, I have little need for CompuServe's services.

At first, these references to ZiffNet/Mac were innocuous enough. But recently, each new issue of *MacUser* seems to become more of an advertisement for ZiffNet/Mac (and System 7) and less of a magazine about the Macintosh.

Mark Andres
via the Internet

/ It's a common misconception that there's no way to join ZiffNet/Mac without paying for CompuServe in the process. Here's the deal: If you sign up for ZiffNet/Mac directly and never access CompuServe, whose computers host ZiffNet/Mac, you will be paying only ZiffNet/Mac's monthly base rate (currently \$2.50), which includes free access to services such as weekly news and the MacUser/ZMac Utility of the Month. Hourly fees are charged for other ZiffNet/Mac areas. Some ZiffNet/Mac material is also available on AppleLink, under the ZiffNet Selections icon. / MS

CLImate Control

OVERALL, THE REVIEW of CLImate, Orchard's command-line-interface and scripting system, was fair (November '93, page 87), but we do have one major objection. The review stated that although CLImate works well for scripting Finder operations, it lacks support for Apple events or any form of IAC (interapplication communication), which are found in other scripting environments such as UserLand's Frontier or Apple's own AppleScript.

This statement is misleading. Although both AppleScript and Frontier are more powerful when it comes to control and integration of scriptable applications, currently there aren't many applications that support what AppleScript or Frontier offers. What's unfair is that the CLImate of today is being compared with the AppleScript and Frontier of the future.

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opponents that haven't shown up on the playing field yet.

Mark Jones, senior software engineer
Orchard Software, Inc., Cambridge, MA

BetaMac

JOHN C. DVORAK'S column "Platform Choose" (December '93, page 300) repeats a shallow analogy made constantly in the press that the Mac, although superior to a Windows machine, can go the way of the superior but dead Betamax VCR standard.

Superiority in mission-critical computing and connectivity as well as in ease of use and setup is why businesses are embracing the Mac. Macs are on a much higher (and more cost-effective) plane than crisper home movies are.

Jeb Cashin
via ZiffNet/Mac

Duos Done Wrong

IN "THE POWERBOOK DUO 250 and 270c: Duos Done Right" (December '93, page 100), the author states that the Duo 270c displays more than 32,000 colors. He also says the display offers 16-bit color. I thought 16-bit color meant 65,536 colors. If 4-bit color is 16 colors (2 to the 4th power) and 8-bit color is 256 colors (2 to the 8th power), then shouldn't 16-bit color be 65,536 colors (2 to the 16th power)?

What am I missing?

Mark Kitzmiller
via ZiffNet/Mac

/ The term 16-bit color is less than exact: Only 15 of the 16 bits are actually used to produce colors — 5 bits each for red, green, and blue — the 16th bit is reserved for special effects such as transparency. These three 5-bit channels can combine in 32,768 ways to produce what Apple refers to as "thousands of colors." / RM

IN THE ARTICLE "The PowerBook Duo 250 and 270c: Duos Done Right," the configurations shown for the PowerBook 165 are all wrong. I think the writer's next article should be called "Catching Up with the PowerBooks," because the configurations for the PowerBook 165 in the table on page 103 are for the old, obsolete PowerBook 160. The PowerBook 165 is a great value, because it sports a 33-megahertz 68030 processor and RAM expandable to 14 megabytes.

Pedro Sarquis
West Los Angeles, CA

You Cut Your In-Laws' Heads Off.

MacUser

COMING SOON:



PERSONAL PRINTERS, POPULAR PRICES

This May, MacUser puts 20 different printers to task: postscript, non-postscript, ink jet and laser monochrome printers are tested in this highly competitive, low-cost category. The

editors scrutinize the hidden costs of owning a printer, including toner cartridge longevity and more. MacUser guides more buyers to make the right decisions.

DRAWING THE BEST CONCLUSIONS

Drawing on our vast experience, MacUser tests all of the best known drawing programs on the market. Based on a head-to-head product comparison, our experts examine the many features of these programs, including updates. As usual, the products are mouse-rated and product recommendations are made. Beginning with the bottom line, MacUser helps buyers draw the best conclusions.

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CIRCLE 158 ON READER SERVICE CARD

I'VE BEEN READING *MacUser* since your first issue. Over the years, I have seen this magazine go from being the leader in helpful Mac information to being yet another mouthpiece for AppleKorps. This trend has reached what must surely be its nadir with your recent review of the PowerBook Duo 270c. The review states, "For users who want the sharpest, lightest PowerBook they can get, the new Duos are the way to go."

The problem comes when one reads this in light of a statement in the article about Apple's claim of a two-to-four-hour battery life for the Duo 270c: "We weren't able to test Apple's battery-life claims before press time." This means that the author must have spent less than two to four hours with the Duo before writing the review. This is hardly sufficient testing time to make any sort of worthwhile recommendations regarding the Duo or any other machine.

William B. Lee
Austin, TX

/ Truly representative battery-life testing is far more scientific than simply plopping a Duo on our lap and typing away for a few hours. Our testing facility, ZD Labs, uses a suite of battery tests designed to mimic common notebook-computer chores, but because Apple was unwilling to give us a prerelease Duo 270c for such extensive testing, we couldn't confidently support its claim of improved battery life. / RM

To the Rescue

I'VE FOLLOWED *MacUser* closely since its introduction years ago but suspended my subscription early last year when I felt the magazine had surpassed my level of use with an older Macintosh SE. Souped up as it was, your magazine was focusing more on slick full-color multimedia presentations, four-color-separation printing, and other fancy uses that I just couldn't keep up with on my vintage small-screened black-and-white SE.

Finally the time came for me to upgrade. I had been looking at the new line of Performas at the local mall but was still undecided. Your December '93 issue ("And Then There Were 4," page 92) helped me decide on the sporty Performa 475. Now I'm back in the game again, and in addition to resubscribing to *MacUser*, I've upgraded to newer versions of my most important software.

Thanks, *MacUser*. You've made my day.

David S. Dobbins
San Angelo, TX

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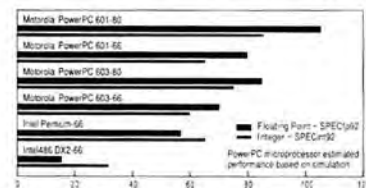
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— Jerry Barber,
Chief Technical Officer, Aldus Corporation

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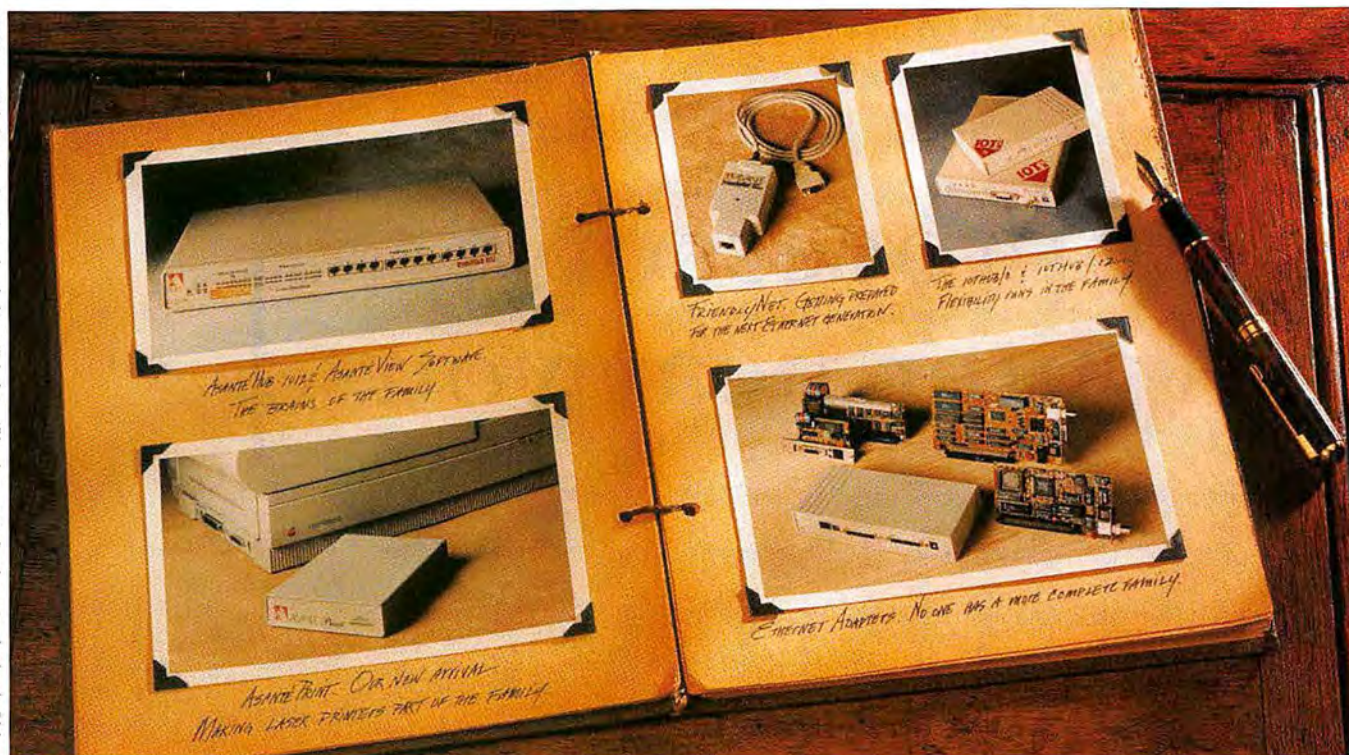
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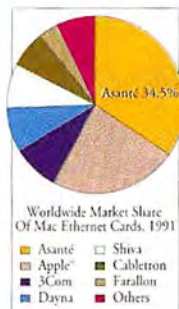
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Yesterday's Macs

WHEN THE GREAT MIGRATION to PowerPC occurs, what will happen to all those older Macs?

The city I live in recently embarked on a major curbside recycling program. It's so comprehensive that they sent us all posters explaining how to separate our dozens of recyclable materials. With the PowerPC just around the corner, Apple may have to start sending out similar posters explaining how people can recycle their old Macs.

Of course, often the best way to recycle your computer is to install an upgrade, and lots of people will have this option for moving up to the PowerPC. Apple has announced that it will ship upgrade packages for six desktop models: the Quadra 610 and 650, the star-crossed IIfx, the IIfx, the Performa 600, and the Quadra 800. Fine, but that leaves out a heck of a lot of Macs.

What about all those LCs Apple sold, not to mention the thousands of compact Macs people are still using? Of course, third-party vendors may take up some of the slack, but there's no avoiding the fact that the PowerPC Mac's unbeatable price/performance is going to cause more people to go out and buy a completely new Mac than ever before. It's going to be the Mac migration of the century.

Serve It Up

So what will happen to all those old Macs? In the spirit of the recycling '90s, here are some suggestions.

If you work for somebody else, having a suggestion for how your current computer could be "redeployed" might help justify getting a PowerPC Mac. Here are three possibilities: First, recycled Macs make great file servers. Second, other, low-level employees might become more productive if given a computer that's easy and fun to use. Third, if you do high-volume printing, your

old Mac can act as a dedicated print server, which frees desktop Macs for other tasks.

If you have a home office, you've got a wide variety of recycling options. You can turn an old Mac into a dedicated assistant for faxes, e-mail, and backup storage. A Mac Plus, Classic, or SE coupled with a fax modem makes a fine telecommunications station while leaving your more powerful Mac free to handle the heavy-duty stuff.

You can also use your old Macintosh for additional processing power, which is what contributing editor Bruce Fraser plans to do. When Bruce replaces his IIfx with a PowerPC Mac, he'll keep the IIfx to run software RIPs and to use as a scanning station. He'll keep high-res scans on the dedicated RIP Mac and low-res scans on his new machine, and then he'll use OPI (Open Prepress Interface) picture replacement when he's ready to print (see "The Hocus-Pocus of OPI," page 125, in this issue). That way, he says, you don't have to "sling great big files around."

Take the Money


Want cash? There's a significant market for used computers. Check out New on the Menu each month for a listing of what you can expect to make from selling most Mac models. You can advertise through your local paper,

on-line services, or user groups. (Word of mouth works well too, and it's cheaper.)

Recycling a Mac to members of your family is an obvious option, but it's not only kids and college students who might like your old Mac. How about your parents or perhaps your grandparents? If you really want to be a good Samaritan, give (or lend) your Mac to an unemployed friend, especially if it comes with a printer. Cranking out résumés and cover letters at a service bureau gets expensive.

You can also donate your old Mac to your favorite charity or, better yet, to an inner-city school, where computer equipment can make a big difference to many children's lives. And don't just give them the computer — give them a few hours of your time, to be sure that it's set up properly and ready to use. You should also check out the tax consequences of donating your old Mac: You may well find that, depending on which Mac you're replacing, you'll save almost as much in taxes as you would

make from selling the machine.

If you really want to get creative, you can always do what columnist Andy Ihnatko did with his Mac Plus — turn it into a working aquarium. But here's my favorite: Give your old Macs to your DOS-using friends. Chances are, they'll never go back to DOS. And when they see your PowerPC Mac, they'll probably start exploring recycling options themselves. 

The PowerPC Mac's price/performance is going to cause more people to buy a new Mac than ever before. It's going to be the Mac migration of the century.

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Do You Copy?

I'M USUALLY CONCERNED ABOUT the consumer as potential victim of a faceless bureaucracy, a rag doll

trapped in the maelstrom and buffeted hither and yon by forces far beyond mortal grasp. But when the topic is copyright material, the shoe's on the other foot. The ease with which copyright material — text, pictures, sound, video, you name it — can be pilfered and published means that consumers have been able to spread around plenty of abuse on their own.

In many cases violating a copyright is a civil offense, not a criminal one; generally, it's up to copyright holders to defend their own rights, and provided you're not a bigwig art director, your chances of being caught slapping a *Dilbert* strip into your newsletter are not tremendous. But whether you're concerned about Doing the Right Thing or Not Winding Up Defending Yourself Against a Sledgehammer-Force Lawsuit, you ought to know the basics of proper use of others' copyright material.

Copyrightist Theory

Copyrights protect authors' basic rights over their work: the rights to perform or display it publicly, to reproduce and distribute it and produce other works based on it, to claim its authorship, and to make sure its integrity is not compromised. Fundamentally speaking, anything you do to a copyright work that tracks mud across these rights is potentially agin the law, which should come as no surprise. Few people can scan an image from a book of art or a newsmagazine without the thought of copyright infringement crossing their minds, and anyone who scans an entire published article for use in the company newsletter has to *feel* the bad karma creeping in. The trouble is, more often than not, these gut instincts are ignored either because of a

misunderstanding of the copyright law's "fair use" doctrine or because of the mistaken impression that rights to a certain item have already been secured or that the item's so old its copyright has expired.

The underlying reason for the existence of formal copyrights is to *promote* the creation and dissemination of ideas, not to hinder them.

To achieve this basic goal without a lot of time-consuming nit-picking over small issues, copyright laws recognize that in certain cases, it's perfectly kosher to use someone else's work without permission. Unfortunately, the fair-use doctrine is a deliberately vague concept backed up by four considerations: how much of the copyright material you used, the nature of the material, the impact your use of it might have on the "value" of the copyright holder's property, and the "purpose and character" of its use. For instance, quoting a couple of paragraphs from a book on AIDS in a free health-awareness pamphlet clearly falls within fair-use guidelines. At the other end of the scale, if I handed in a column that began, "Hey, Dave Barry wrote a nice essay last week on buying a computer" and reprinted the entire thing verbatim in a magazine that sells hundreds of thousands of copies — well, you get the idea.

Most real-life cases fall somewhere in between. How about a schoolteacher digitizing a *National Geographic* photo for a class hand-out? A nonprofit user group parodying a

famous news photo on T-shirts and selling the shirts at modest profit? The government has provided eight possible examples of fair use (including classroom use and parody), but clearly these are treacherous waters. In each case, you ought to scrutinize the copyright holder's rights as outlined above to decide whether using this material is "right"; then, to cover your behind, you ought to take a good look at the four fair-use considerations and may want

to consult a lawyer to decide whether it's *legal*. If you do decide to go ahead, be sure to include the creator's copyright notices (such as "Copyright 1982 Zaphod Beeblebrox," or "Excerpted from . . ."). None of this will shield you from the wrath of an angry copyright holder, but it will demonstrate to the court that you at least attempted to act "fairly and in good faith."

Finally, be painfully aware that fair use may be applied differently

when it comes to trademarks. If, for instance, you used a clip from *Star Wars* in a classroom multimedia presentation on astrophysics, you *might* be completely hunky-dory from a copyright point of view but Lucasfilm could still throw you against a wall for using the distinctive trademarked likenesses of C-3PO, Luke Skywalker, and the rest of the gang without permission.

The major question — Do I have the rights to this or don't I? — can be far more insidious. When you buy a \$200 CD-ROM of photos or PostScript graphics, or even a paperback of so-called scanner art, you expect that you can splash the contents

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pell-mell all over your printed material. But the original publisher often retains certain rights to those contents, such as the right to incorporate an image into another product's packaging or to use an image strictly for commercial purposes (slapping it on a T-shirt, for instance). In some cases, modifying an image is verboten. For clip art, stock photography, and so on, it's important that you read licensing agreements thoroughly *before* you buy.

Beware, too, of using artwork from a collection whose publisher did not seek permission from all the original creators. Most collections are carefully compiled either from in-house sources or through ironclad acquisition of rights, but some are not. Obviously, an EPS graphic of Jessica Rabbit found in a user-group collection isn't safe to use (especially when you think about Disney's lawyers — brrrr!), but other images might not be so easy to spot. I can't over-stress the importance of making dang sure that the publisher has provided you with material free of copyright entanglements *before* you commit imagery to paper.

Getting Faced

Speaking of copyright graphics, fonts are an exception. In 1988, the U.S. Copyright Office ruled that individual typeface designs are not, repeat *not*, copyrightable. The government worried that allowing a copyright on Times Roman, say, or Helvetica would add an entirely new layer of complexity to the copyright process. A newsletter typeset in that face would have to deal with copyright considerations about the look of its typefaces in addition to its content, which raised a concern about an "inappropriate protection of the vehicles for reproducing the printed word."

This is a really sticky area, however. If you see a neat typeface in a font catalog and possess the hardware, the software, and the patience with which to turn those images into an outline font, the law can't stop you. The programs that generate typefaces are copyrightable, so font outline files and bit maps, like any software, are still fully protected by copyright laws. A recent court case in which five font companies accused another vendor of pirating the font software,

not just the designs, showed how messy this can get. And symbol fonts (dingbats and the like) are protected as graphics, not fonts.

Better Read When Dead?

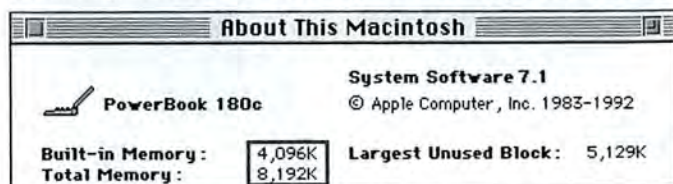
Now, about those famous last words, "Get serious, this thing couldn't possibly be under copyright." Keen insights like this have allowed lawyers to get their own 800 numbers and predawn UHF airtime. It's *always* safest to assume that any questionable item in your hands is protected under some sort of copyright (or trademark). Obvious questions arise when you're dealing with relatively old stuff. As the scores of machine-readable Shakespeare and Sherlock Holmes texts on on-line services attest, copyright material can and does fall into the public domain eventually, but you can find out which material is safe to use only after a little exploration. Again, these are deep waters, and the concept defies a simple, ironclad explanation.

As a rule of thumb, it's safe to assume that something's fallen out of copyright if it was first published more than 75 years ago (this

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covers the 28-year term of the original copyright plus an additional 47 years for possible copyright renewal). And for those of you who like to plan ahead, works that were first published in 1978 or later will become public domain at least 50 years after the death of

enhancements to differentiate this work from the public-domain versions, and you might end up strung up by your codpiece.

Finally, copyright material has a funny way of turning up where you least expect it. *Never* assume that just because something

MICHELANGELO'S *DAVID* is in the public domain, but the photo of it you scanned in from a magazine probably isn't; that copyright belongs to the photographer.

their authors; if it was written by a team, under a pseudonym, or under a few other special circumstances, your mileage may vary.


But even here, there are caveats. Yes, Michelangelo's *David* is in the public domain, but the photo of it you scanned in from a magazine probably isn't; that copyright belongs to the photographer or anyone he or she signed it over to. Also beware of buying a Shakespeare paperback in a store and scanning it into a commercial product of your own; it's entirely possible that the paperback publisher inserted one or two

appears without a copyright notice, it's not protected. Everything set into tangible form is copyrighted the moment it's created, which means that even esoteric things such as electronic messages are copyright material and should be used with caution or, preferably, with the author's permission.

Parting Shots

When I find myself with an enormous Too Much Legalese headache, I always feel compelled to add that I'm not a lawyer and that any serious concerns about the proper use

of copyright or public-domain materials should be directed to someone who gave the appropriate institutions the appropriate sums of dough. Also, feel free to contact the government for help. Write to the Information Section, U.S. Copyright Office, Library of Congress, Washington, DC 20559, or call 'em up at 202-707-3000. Lots of informative booklets and briefings are available just for the asking.

But when all is said and done, the best solution to the whole mess is just to pick up the phone and try to get permission from the copyright holders. You'd be surprised at how helpful those folks can be. For instance, a user group wanted to use images of *Star Wars* characters for a magazine article; Lucasfilm not only granted them free one-time rights but also filled out their wish list of images from the Lucasfilm stock-photo library. As a result, the group got images of higher quality than they might otherwise have obtained, Lucasfilm was accorded the proper respect for its copyright material, and good karma flowed like wine. But first and foremost, it was the Right Thing to Do. 

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Rush to Judgment

THE GARAGE MECHANIC HAD left the car radio tuned to an AM station, which became evident

before I had even pulled out of the lot.

"I'm not going to sit here and stand for this," the radio said, getting my attention. I immediately recognized the voice as that of noted political philosopher and Mac enthusiast Rush Limbaugh.

Now, why was I suddenly reminded of the fracas over the multimedia patent recently granted to Compton's NewMedia? Curiosity overcame the urge to change stations. Cruising up Front Street, listening to the engine and the radio, I realized what it was: The reaction of the multimedia community to the patent announcement had the precise urgency and intellectual depth of an alarm clock going off. Which is to say, of Rush Limbaugh, he whose amplitude is never modulated.

"This isn't just a patent on a multimedia technique," went the cries, "it's a patent on multimedia itself!"

A patent on multimedia! That could be serious. What would it mean for Apple, as it starts checking off to-do items on Spindler's list? Or to Kaleida Labs? What planned multimedia products would infringe this sweeping patent? Or what existing products now infringe it? Because the patent application dates back to 1985, scores of other products — including HyperCard — might already be infringing it.

But for talk-show hosts and computer-industry leaders alike, it sometimes pays to read beyond the press releases and the newspaper headlines. When industry leaders scrutinized the patent itself, it began to appear that they had rushed to judgment.

Patent #5,241,671 for a "multimedia search system using a plurality of entry path means which indicate interrelatedness of information" is a weighty document, but the

consensus among those who have examined it seems to be that it doesn't cover anything near to all of multimedia and that what it does cover is subject to challenge on the basis of prior art.

But it doesn't really matter what they think, and it might not matter what a court would think, because the deal Compton's is offering multimedia-product vendors is this: Pay us a small royalty, or other small tribute, and avoid a costly lawsuit whose outcome is, after all, impossible to predict.

Given the courts' current confusion regarding patents, Compton's is right about lawsuits. Is the offer so bad? Unpalatable, maybe, but surely not the crisis it's been painted to be. As I turned up the hill toward home, Limbaugh was saying something about whining liberals.

Is this multimedia-patent flap, then, just a lot of whining? So what if one company gets rich off other multimedia companies and we all pay 1 percent more for multimedia products. That's capitalism, right?

But I think there is a serious issue involved. Compton's NewMedia is only one company applying for broad software patents, and the patent examiners and courts are fumbling in the dark, because they can act only on the basis of our shared societal understanding of the rights that exist in intellectual property. And we don't have any

such shared understanding. Laws that worked for the spinning jenny don't necessarily make sense when applied to multimedia search routines. Technology has changed the playing field, and we need to reexamine the rules of play.

The real question is, who is hurt by inconsistent and unpredictable patent-law interpretation? My answer: the kitchen-table entrepreneurs who can't afford to consult a lawyer before implementing a search routine, people such as the Mac heroes who wrote early Mac DAs and HyperCard stacks and now are developing Newton software, and those of us who benefit from their efforts. Software innovation itself.

Anyway, that's my opinion. And personal opinions, mine and yours and even

Rush's, are where it starts. We as a society need to decide what intellectual property is, just as we need to decide what privacy means when the digital highway runs through our homes. These are questions as difficult as those faced by the drafters of the U.S. Constitution and deserve to be debated publicly and seriously.

Driving past the university, I had a moment of optimism about public debate over serious issues, and then Limbaugh reminded me that his fans call themselves Dittoheads.

The Patent Office has for the first time begun holding public hearings on software-patent applications.

So what if one company gets rich off other multimedia companies and we all pay 1 percent more for multimedia products. That's capitalism, right?

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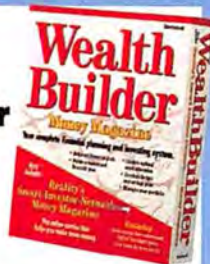
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MacEKG provides a powerful set of diagnostic tools for testing and watching over your system—automatically. It combines intelligence with an easy-to-use interface that makes it easy to diagnose problems and increase the performance of your Mac. Micromat Computer Systems #98378
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\$3498

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Financial Assistance



\$59998 Sony CPD-1430

The technology leader for home office professionals

For color quality and sharpness, this Sony 14" monitor was the clear winner and Bottom Line Pick in Mac/ser tests (August 1993). And because it's asynchronous, it works with both Macs and PCs and has a maximum resolution of 1024x768 at 72Hz refresh. Sony #99166



\$14998 Sony SRS-D2K Speakers

A complete and quality sound system for your Mac

This awesome 30 watt sound system is designed to grab your attention without taking up valuable desk space. With crisp, clear sound that will highlight any of your sound capable programs and deliver high quality for your CD-ROM programs, this is a great addition to any system. Sony #13166



\$4498 Square One 2.0

The ultimate organizer

A simple, intuitive tool that puts your favorite files at your fingertips, and simplifies a cluttered desktop. The Square One palette is fully customizable and lets you organize your files just the way you want so that you don't waste valuable time. There is no better way to get organized. Binary Software #06592



\$4298 Sim City 2000

A new level of realism
More buildings, more details, more tools, more art, more depth, more realism and 3 dimensional views, at 3 levels. It's the closest thing to running a modern city, without being elected. MAXIS #98717



\$3498 SubVersion 1.0

Challenging strategy game

SubVersion is an "underwater chess" strategy game that combines tactics and resource management into a challenging battle of wits. Offering 10 levels of difficulty and over 300,000 game variations, it will never be the same game twice. Point Of View Computing #99558



Semi-pro.



HP SCANJET II CX

If you're a sophisticated scanner user, you shouldn't have to settle for a semi-sophisticated scanner. Not when the 1600 dpi EPSON 800C Pro/Mac has so much more to offer. More versatile controls. More powerful software. Better connections. Stronger support. More flexible options. All of which makes this the one scanner that will actually live up to your

*One-year warranty, extendable to two years with return of registration card, at no charge. EPSON, HP, Macintosh, Adobe Photoshop, and Kai's Power Tools are trademarks or registered trademarks of Seiko EPSON, Corp.; Hewlett Packard Co., Apple Computer, Inc., Adobe Systems and IISC Software respectively. All other trademarks are the property of their owners. ©1993 EPSON America, Inc., 20770 Madrona Ave., Torrance, CA 90503. For dealer referral or warranty details, call 800-BUY-EPSON (800-289-3776). In Canada, call (800) GO-EPSON. For Latin America, 305-265-0092.

Pro.



The 800C Pro/Mac is solidly backed by EPSON's one-year warranty extendable to two years.* HP's warranty is one year.

The 800C Pro/Mac package includes the powerful full version of Adobe PhotoShop, plus the highly acclaimed Kai's Power Tools. HP offers a limited version of PhotoShop.



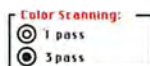
The 800C Pro/Mac comes with both SCSI and bidirectional parallel interfaces so you can connect it to a PC and a Mac simultaneously. The ScanJet II CX connects to one computer.



EPSON's transparency unit and document feeder are powerful options that work across every scanner in our line. HP's scanner options aren't that flexible.



Only EPSON has color and gamma correction settings built right into the scanner hardware.



The 800C Pro/Mac gives you the flexibility of 1- or 3-pass scanning for optimal results with any image. The ScanJet II CX is strictly a 1-pass scanner.



THE EPSON CONNECTION

If you need technical assistance, you can call the pros at the EPSON Connection, our toll-free help line.

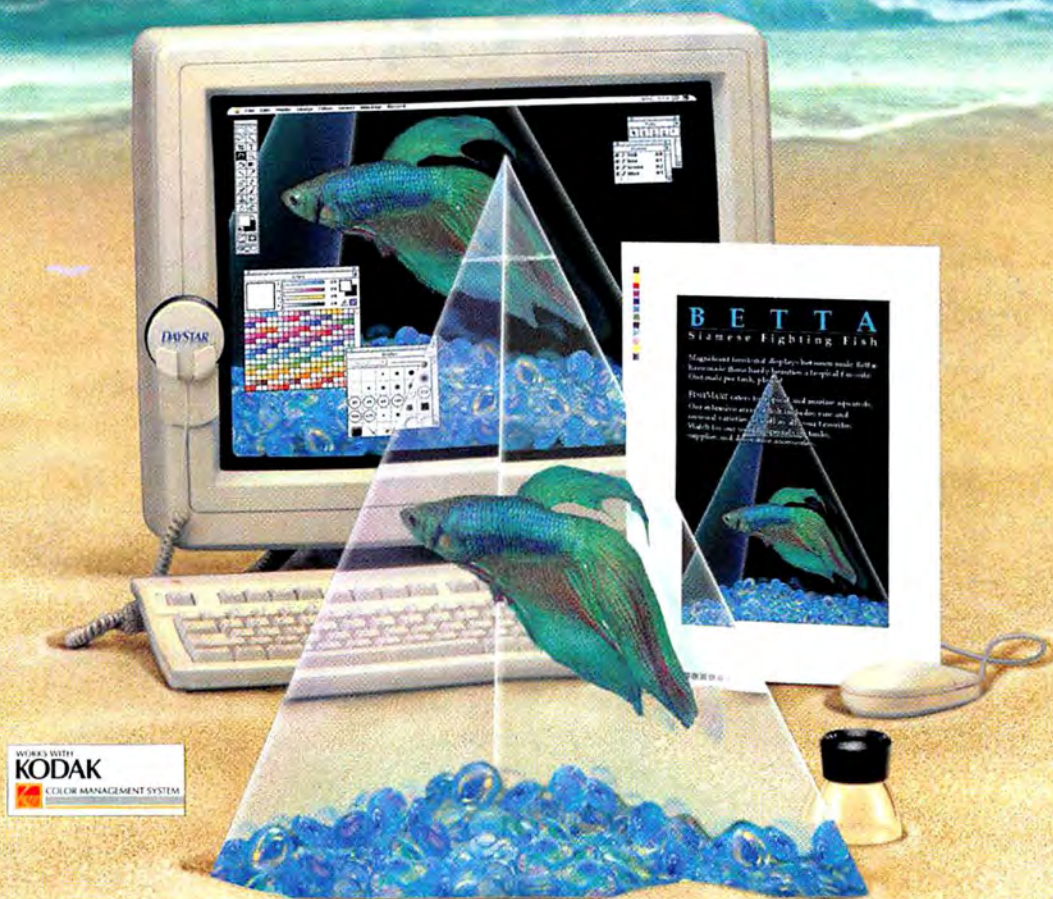


EPSON 800C Pro FOR MAC

exact professional standards. For our free booklet on scanning, or more information on the 800C Pro/Mac or our other scanners for Macintosh and PCs, call the EPSON Connection at 1-800-BUY-EPSON (800-289-3776). And get the scanner that's in a league of its own.

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No more guesswork! DayStar's ColorMatch software will change the way you look at color on your Mac. Now, you can make color editing decisions based on what you see on your monitor. You no longer have to cross your fingers and hope to get the right color when you print.

It really works. In fact, it's been working successfully for years as Kodak's professional level color management system. Working with Kodak, we've brought it down to the Mac and integrated it into the leading applications - Adobe Photoshop, QuarkXPress and Aldus PageMaker.

Easy to use. ColorMatch is automatic. Simply tell your application which scanner and printer you use, and the rest is taken care of for you. You just see consistent, predictable color.

Upgradable. ColorMatch is an affordable, ready to use solution that is 100% compatible. It includes a basic set of color profiles for many of the leading scanners and printers. You also get a "Color on Call" CD-ROM with profiles of many leading high end scanners and printers*. And, if you add DayStar's Charger accelerator card, you can make it all faster!

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*Profiles for high end devices cost extra and can be unlocked from the Color on Call CD-ROM by calling DayStar.

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NEW ON THE MENU

ON-LINE SERVICES /

APPLE OPENS UP ANOTHER E-MAIL WORLD

New on-line service offers unique features. BY STEPHAN SOMOGYI

APPLE IS MOVING INTO THE ON-LINE-service business — in a big way.

e•World, due to be officially launched in April in the U.S. and available worldwide by early 1995, signals a new era in electronic communications. Owned and operated by Apple Online Services, e•World is not just a repackaged AppleLink, nor is it a variation on America Online (AOL), even though Apple bought rights to AOL's client and server technology. e•World is a completely new on-line service, with several features not offered by competitors.

Available now in beta for the Mac, with Windows and Newton front ends to follow, e•World will provide e-mail and numerous areas for on-line browsing. The new service's graphic interface makes for easy navigation. Looking like an outtake of Disney World, e•World's main window shows a small town with various buildings,

each with a particular purpose. For example, the post office houses e-mail facilities, the bank building is inhabited by financial-information services, and so on.

One of the major differences between this and other on-line services is that companies will sell their electronic wares in e•World. There will be no surcharge for purchasing products and services on-line, although eventually you may have to pay more to enter a particular company's area.

ZiffNet/Mac, MacUser's on-line service, will be available on e•World from the beginning. Subscribers will have access to the Editors' Choice Shareware Library; ZMac utilities; MacUser reviews; MacWeek news; the Developer's Corner, where they can



Welcome to the global village.

The interface to Apple's e•World on-line service (shown here in prototype) lets you navigate information by entering buildings that house various types of services.

exchange information with programmers; and more — again without any additional fees.

Apple is firmly committed to e•World for the long term, planning to replace AppleLink with the new service eventually (all current AppleLink IDs have been reserved for e•World — no need to pick a new handle). The company is aggressively courting top-notch information providers, and e•World's

familiar, Mac-like environment should attract key developers who have found competitive services too cumbersome.

e•World will cost \$8.95 per month, which includes two hours of non-prime-time (6 P.M. to 6 A.M. local time) access. Every additional non-prime-time hour will cost \$4.95, and prime time (6 A.M. to 6 P.M. local time) will incur a \$2.95 hourly surcharge. For this unpaltry sum, you get free Internet mail and free 9,600-bps access — features that can cost substantially more on other services. 800-776-2333 or 408-996-1010.

INFORMATION MANAGERS /

The Further Adventures of Super-PIM

THOSE WHO USE MACS TO MANAGE THEIR LIVES usually need at least two PIMs — one to handle names and phone numbers and another to handle schedules. But a new class of personal information managers, dubbed *super-PIMs*, not only integrates these diverse functions but also links associated information. Like schedulers, these applications remember that you're having a lunch meeting, but they also track whom you're meeting with, when you've met with them before, and where to reach them.

Rae Technology's *Assist* was the first such integrated PIM for the Mac. Assist combines contact-management and scheduling features with some software smarts to make a package that automatically links virtu-



ally all the information you need to juggle people, places, and things. Assist is a self-contained environment for managing the disparate types of information it links. You don't switch windows for different views — only one

view can be active at a time, but related views are only a mouse click away. The latest version, Assist 1.5 (\$199; upgrade, \$29), adds a planner and addresses version 1.0's main shortcoming, speed. 408-725-2850.

Common Knowledge's Arrange 1.1 (\$349) takes a somewhat different approach from Assist's. Whereas Assist has a well-defined — and for some, insufficiently flexible — environment to work in, Arrange is completely configurable.

Arrange combines outlining, scheduling, and cross-linking. The basic unit of information is a note: A People note contains details about a person, a To-Do note holds information about a to-do item and possibly includes a link to a person, and so on. You can create your own note types or modify existing ones to hold new types of information. You can also remove note types you don't need. This degree of flexibility lets you build a customized environment. However, the flexibility comes with a price: You have to spend the time to set things up so that they're just right. 800-954-3800 or 415-325-9900. / Stephan Somogyi



TECHNOLOGY TRENDS /

SCSI GETS BURNED

Apple's new Firewire technology promises faster connections. BY HENRY NORR

AN END TO THE SCSI BLUES isn't yet at hand, but at least it's in sight.

Apple has begun showing off a new interface technology that will eventually replace the familiar SCSI connectors on the Mac and on hard-disk drives and other Mac peripherals. Apple calls the interface Firewire.

Technically speaking, it's a combination of a new IEEE standard and a new implementation of SCSI, called the Serial Bus Protocol.

Firewire has many advantages over existing SCSI:

Speed. In its initial implementation, Firewire transfers data at 100 megabits per second, but the specification allows for an eventual increase to 400 megabits per second. In contrast, Apple's current SCSI implementations are limited to 40 megabits per second.

Convenience. Firewire will eliminate most of

the complexities that plague Mac users who try to daisy-chain multiple peripherals. It won't need terminators, you won't have to worry about ID numbers, and you'll even be able to add or remove devices without powering everything down. You also can attach any number of devices in a chain.



Compactness. SCSI as we know it is like an eight-lane highway: Data travels in parallel, eight bits of data at a time. Firewire is a high-speed serial standard: Bits of data travel one after another down a one-track digital raceway.

The difference means that Firewire connectors and cables will be much narrower and lighter and thus less expensive; they resemble the serial cables and connectors we now use to attach printers, modems, and ADB devices. (The biggest challenge may be

keeping straight which cable is which.)

Audiovisual support. Other companies are developing competing peripheral interfaces, some even faster than Firewire. But Apple's technology is unique in its special provisions for transfer of *isochronous* data — information, such as real-time video and audio, that has to reach its destination in a steady, uninterrupted stream, at a predictable rate. In its Firewire demos, Apple shows a Mac displaying live video from a digital camera with no interruption, even when the computer reads data from and writes it to a hard disk on the same bus.

Exactly when and how Apple will make the transition to Firewire isn't yet public; the new technology won't be built in to the first PowerPC Macs and apparently not in to second-generation RISC systems either. But by 1995, you may be able to add Firewire to your Mac with a simple plug-in card.

Peripherals that also have Firewire support should be coming soon. Several companies have announced plans to build the necessary chip sets. And IBM recently endorsed the technology and is expected to add it to some PC models, so makers of drives, scanners, and other devices should have plenty of incentive to make the move.

ILLUSTRATIONS / JOHN CORBITT

APPLE PUMPS OUT PRODUCTS

APPLE RECENTLY ANNOUNCED a flurry of peripheral products, including a graphics card, a printer, and a monitor, with more to come.

The **Apple Macintosh Display Card 24AC** is a 24-bit QuickDraw accelerator for Macs equipped with NuBus slots. The card is designed for 19-, 20-, and 21-inch monitors, but it can also drive 13- and 16-inch ones as well as portrait and older two-page monitors (1,024 x 768 pixels). \$1,579.

The **Personal LaserWriter 320**, a PostScript Level 2 printer, replaces the vintage Personal LaserWriter NTR and the LaserWriter Select 310. The 15-pound printer contains the same four-page-per-minute, 300-dpi engine as the HP LaserJet 4ML. Apple's FinePrint text-enhancement technology comes standard; PhotoGrade halftone-enhancement support requires an optional RAM upgrade. \$959.

The 14-inch **Apple Color Plus Display** targets midrange-Mac users. It has a noninterlaced 640-x-480-pixel display, a 67-hertz refresh rate, and a .28-millimeter dot pitch. It also complies with magnetic-field-emission guidelines. \$305. 800-776-2333 or 408-996-1010. / Pamela Pfiffner

WORD OF MOUTH

"IT WAS SHOWN to Microsoft, and as Queen Victoria once said, Mr. Gates was not amused. He hiccuped, and that was enough to send the lawyers scrambling." / Berkeley Breathed, creator of the *Outland* comic strip, on why his caricatures of Microsoft CEO Bill Gates no longer appear in Delrina's Opus 'n Bill Screen Saver

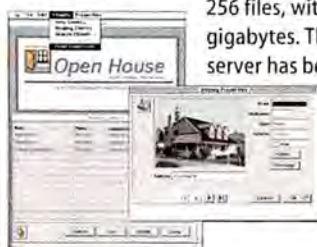
PARED-DOWN 4D Targets Low-End-Database Users

INTIMIDATED BY 4TH DIMENSION? With 4D First, a pared-down version of ACI US' 4th Dimension relational-database program, you can access 4D's power without worrying about programming. 4D First lets you create your own 4D databases, but more important, it also acts as a run-time version for any existing 4D database. 4D First can open 4D databases and 4D can open 4D First databases, so future compatibility is assured.

With 4D First, ACI targets high-end Claris FileMaker users who want an approachable desktop application yet want the speed and sophistication of 4D's relational database and 4D Server's networked databases. The \$295 4D First, which replaces File Force in the ACI lineup, ships with ten database templates, eight chart types, and an automatic label generator.

The company also released 4th Dimension 3.1 and 4D Server 1.1. Among other new features, the upgrades expand 4D's capacity to

256 files, with a maximum database size of 128 gigabytes. The interaction between client and server has been refined — for example, layouts and procedures are saved locally for instant access. Connectivity over TCP/IP has also been added. 4D 3.1 upgrade, \$59; 4D Server 1.1 upgrade, \$149. 408-252-4444. / Pamela Pfiffner



NO HARDWARE REQUIRED

PowerPC chips fuel complex tasks.

WHILE SPECULATION ABOUT THE EXACT details of Apple's PowerPC Macs runs rampant, let's consider the nifty things we can do with the PowerPC's computational horsepower. IBM recently gave several software and hardware demos that illustrated how the PowerPC not only is going to accelerate existing applications but also will provide capabilities that haven't been possible, or that have required dedicated hardware, on personal computers.

Multimedia, especially audio, is usually hardware-heavy, but not so with the PowerPC. The Quadra 660AV and Quadra 840AV, for example, need special DSP chips to supply the muscle required by features such as speech recognition and text-to-speech capabilities. But IBM demonstrated similar features running on PowerPC 601-based workstations with nary a DSP in sight. For Mac users who want the functionality of the AV Macs, such demonstrations offer proof that the PowerPC Macs can handle the computational load without resorting to DSP chips. Suggesting other possibilities, IBM also showed sophisticated manipulation of digital audio in a sound-editing application — no add-on boards required.

To get an idea of the PowerPC machines' potential for running complex operations, check this out: a 601-based workstation playing back

three windows' worth of full-motion digital video, running speech-recognition software, and also running a Windows application on top of WABI. (WABI is software technology developed by Sun Microsystems and adapted for the PowerPC by IBM. WABI allows Windows applications to run on non-Intel-chip-based computers, without Windows being installed.) True, the 601 chip providing the horsepower for this multimedia extravaganza runs at 95 megahertz — IBM was quick to point out that the 95-megahertz chip was a technology demonstration and not a preannouncement for a higher-speed 601. But nevertheless, this display was impressive, because all three operations were running simultaneously on a single 601 processor without any hardware assistance for either the video decompression or the speech recognition.

IBM has made one other announcement of interest to Mac users. PReP (PowerPC Reference Platform) is a hardware spec for PowerPC systems that enables system software and applications to run on different PReP-compliant PowerPC machines with little or no change to the software. Porting System 7 to run on non-Apple PowerPC systems should be much more straightforward, now that there's a PowerPC hardware standard.



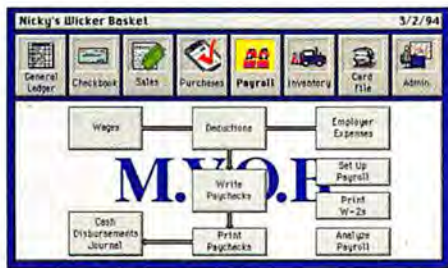
ACCOUNTING SOFTWARE /

GO FIGURE: M.Y.O.B. 4.0 ADDS PAYROLL

IN THE PAST, THE BIGGEST COMPLAINT consumers had about the Eddy Award-winning accounting program M.Y.O.B., from Best!Ware, was that it didn't have integrated payroll. No more.

Version 4.0 adds a payroll function that, in true M.Y.O.B. tradition, is extremely easy to use. Simply pick from a list of states to tell M.Y.O.B. where each employee lives and works, and the program will calculate which taxes apply. M.Y.O.B. 4.0 (\$199.95 with payroll, \$99.95 without) gives you all tax and deduction information for most areas of the country, and unlimited payroll and tax updates are available for an annual fee of \$99.

Look for other exciting developments to come from Best!Ware this year, such as software that recognizes that different businesses have special accounting needs and that many Mac businesspeople are not CPAs. A project is in the works that will customize M.Y.O.B. for 24 general-industry categories and will provide special support and assistance for each. 201-586-2200. /Victoria von Biel



Channeling Mac to TV

A new video card from E-Machines hopes to hit America where it lives: in front of the television set. Called Simply TV (\$439), it enables owners of LC-class Macs (the Color Classic to the Quadra 605) to use television sets as displays for their Macs. Its ability to output NTSC and PAL video also makes it possible for users to transfer QuickTime movies, presentations, and other Mac-generated materials to videotape, creating a new kind of home movie.

In keeping with its name, Simply TV strives to be friendly, even to users who balk at setting a VCR clock. It doesn't require any software, and a foldout card illustrating the installation procedure is its only documentation. After installing the card in the Mac's PDS slot, you connect a cable (which E-Machines provides) to the RCA jack of your television or VCR. E-Machines' hardware is designed to minimize the flicker and "color crawl" that can result when computer graphics are converted to TV format.

E-Machines expects Simply TV to find a wide audience in homes and schools, where a large-screen television can enable a family or a classroom to view materials together, in a way a small monitor doesn't allow. Educational CD-ROMs and games are seen as prime candidates for this kind of group viewing. 800-344-7274 or 408-541-6100.

/Jim Shatz-Akin



LEGAL TANGLES /

PATENTS CHALLENGE
MULTIMEDIA DEVELOPMENT

Compton's NewMedia wants developers of interactive titles to join up or pay up. BY CONNIE GUGLIELMO

COMPTON'S NEWMEDIA STUNNED the fledgling multimedia industry last fall when it announced that it had been granted a patent that could apply to most interactive multimedia presentations being created for Macs and PCs. Multimedia-titles developers and their lawyers are still asking whether the patent actually give the company ownership of the basic technology that makes it possible to search and retrieve information from a database containing text, graphics, audio, video, and animation.

If the patent is everything Compton's says it is, the company, a division of media giant Tribune, will have a stranglehold on the burgeoning interactive-titles market. Saying it wants to encourage and not restrict titles development, Compton's has asked developers to join up or pay up: They can either participate in codevelopment and distribution deals or pay a minimum 1-percent royalty on products that use the patented technology.

How that will affect future titles development — and the prices users will have to pay for titles — is unclear. But so far, titles developers don't seem willing to give Compton's credit, let alone a piece of the financial action, for inventing multimedia-search technology.



Arguing that interactive-multimedia technology has been in the public domain for years, such industry groups as the Multimedia Developers Group, the Interactive Multimedia Association, and the International Interactive Communications Society have challenged the patent by looking for "prior art" — products that predate October 1989, when Compton's applied for the patent (shortly after releasing its MultiMedia Encyclopedia, an interactive, CD-ROM-based version of the popular *Encyclopaedia Britannica*). As a result, the U.S. Patent and Trademark Office is reviewing the patent — a process that could take months. Compton's has suspended enforcing its claim until a decision has been reached.

If the patent is upheld, according to Robert Barr, a patent attorney with the Palo Alto, California, office of Brobeck, Phleger and Harrison, it's up to Compton's to pursue and legally challenge companies it believes have infringed its patent, a lengthy and costly process that could drag on in the courts for years, depending on the targets Compton's picks and where the company chooses to stage its legal battles. "Generally, Silicon Valley judges and juries are more knowledgeable about software issues than people in other areas in the country," Barr says.

What Compton's has patented is a specific way of searching multimedia information contained in a database, a method that involves using both text and graphics as the search mechanisms. "It provides at the outset for multiple ways of doing a search — what Compton's calls 'multiple graphical and textual entry paths,'" Barr says. "The patent actually requires a menu of multiple entry paths, from which the user can choose which way to do the search."

That means multimedia applications that do only text-based searches, from which text, video, graphics, and/or audio are retrieved, are not covered by Compton's patent, according to Barr.

ILLUSTRATION / JOHN CORBITT

MACINTOSH PRICE INDEX

THE UNITED COMPUTER EXCHANGE index reflects national sales activity for the new and secondary Mac market as of December 3, 1993. Prices do not include a monitor or a keyboard. New prices represent the average discount selling price of current models. The United Computer Exchange is a national clearinghouse for buyers and sellers of used microcomputer equipment. For more information, contact the United Computer Exchange at 800-755-3033 or 404-612-1205.

Mac Model	New	Used	Mac Model	New	Used	Mac Model	New	Used
Plus (1/20)	*	\$300	Ilfx (5/80)	*	\$975	PowerBook 100 (4/20)	*	\$700
SE (2/20)	*	\$375	Ilvx (4/80)	*	\$925	PowerBook 140 (4/40)	*	\$900
SE/30 (4/40)	*	\$675	Centris 610 (4/80)	*	\$950	PowerBook 145 (4/40)	*	\$1,025
Classic (4/40)	*	\$450	Centris 650 (8/230)	*	\$1,575	PowerBook 145b (4/40)	\$1,349	\$1,100
Classic II (4/40)	*	\$550	Quadra 605 (4/80)	\$949	\$775	PowerBook 160 (4/40)	*	\$1,350
Color Classic (4/80)	\$1,069	\$850	Quadra 610 (8/160)	\$1,399	\$1,150	PowerBook 165 (4/80)	\$1,699	\$1,450
LC (2/40)	*	\$375	Quadra 650 (8/230)	\$2,349	\$2,025	PowerBook 165c (4/80)	\$1,669	\$1,425
LC II (4/40)	*	\$450	Quadra 700 (4/230)	*	\$1,175	PowerBook 170 (4/80)	*	\$1,425
LC III (4/80)	\$799	\$600	Quadra 800 (8/230)	\$2,699	\$2,150	PowerBook 180 (4/80)	\$2,199	\$1,750
II (5/40)	*	\$400	Quadra 660av (8/230)	\$2,299	\$1,750	PowerBook 180c (4/80)	\$2,549	\$2,075
IIsi (5/80)	*	\$575	Quadra 840av (8/230)	\$3,549	\$3,125	PowerBook Duo 210 (4/80)	*	\$1,100
Ilx (5/80)	*	\$725	Quadra 900 (4/230)	*	\$1,875	PowerBook Duo 230 (4/120)	\$1,529	\$1,200
Ilcx (5/80)	*	\$525	Quadra 950 (8/230)	\$3,999	\$3,150	PowerBook Duo 250 (4/200)	\$2,589	\$2,075
Ilci (5/80)	*	\$825	Portable (1/40)	*	\$325	PowerBook Duo 270c (4/240)	\$3,097	\$2,625

* = discontinued model

TIDY YOUR FINDER



ARE YOU YOUR FINDER'S KEEPER? This month's ZMac utility, Finder's Keeper, dispenses with desktop clutter by letting you define layers of Finder windows and effortlessly switch among them. When you've defined and saved a layer of windows, you can restore that layer, reopening all of its windows while closing the currently open ones, simply by choosing its name from a menu. Finder's Keeper lets you store groups of windows for specific projects, preserve elaborate window arrangements, and more.

Finder's Keeper was written by Mike Throckmorton (72511,410), author of Serial of Champions and Quickie Folder. It's available exclusively on ZiffNet/Mac and from the ZiffNet Selections area on AppleLink; ZiffNet/Mac members can download Finder's Keeper free of connect-time charges until February 25, 1993, by typing GO MACUTIL. After that, you can find the file FKEEP.SIT in Library 3 of the MacUser Forum (GO MACUSER). AppleLink users should look for Finder's Keeper in ZiffNet Selections:MacUser Software:Utilities. / Mark Simmons

CD-ROMS /

HOME SHOPPING MEETS THE MAC

Interactive CD-ROMs put a new spin on catalog shopping. BY PAMELA PFIFFNER

IT'S HARD TO ARGUE with the convenience of catalog shopping, but there are drawbacks: Catalogs waste a lot of paper, they're expensive to produce and mail, and you can't try out stuff before you buy. If several vendors, Apple included, have their way, CD-ROM technology is the answer.

In these schemes, software is encrypted on the CD-ROM. To purchase an application, you phone a toll-free number and fork over your credit-card number; in return, you receive a code that lets you unlock the program, after which you can download it to your hard disk. Demo software lets you get a feel for the application before you buy.

Here's a rundown on some recent efforts: **Software Dispatch**, from Apple, features 80 applications that users can sample through interactive tutorials, demo versions, and product-information sheets. In addition, it

provides 12,000 pages of on-line documentation, which you can view with Apple's DocViewer. You can obtain the free disc by calling 800-937-2828, ext. 600.

The Mac Zone Instant Access CD, an extension of The Mac Zone mail-order company, offers 150 products at prices 5 percent less than The Mac Zone's discounted prices. Not all the documentation is on-line, so you sometimes have to wait for the mail. Available via The Mac Zone catalog, the discs are free. 800-684-8080 or 206-881-1148.

Club KidSoft combines shopping for educational software with playing children's games. A \$9.95 subscription gives you a magazine that includes software reviews, games, and quizzes and a CD-ROM that contains 100 products. Played on an audio-CD system, the CD-ROM can serve as a companion to activities in the magazine. 800-354-6150 or 408-354-6100.

En Passant, also from Apple, veers off in an interesting direction: retail merchandising. Instead of buying software, you have access to catalogs from 18 retailers, including L.L. Bean, Pottery Barn, and Apple. In some cases, you can try out product combinations — changing clothing colors on-screen, for example. As you browse, you add items to your shopping list. Calling a toll-free number connects you to the appropriate retailer. Currently, En Passant is a trial program for selected CD-ROM owners.



Apple's home-shopping CD-ROM, En Passant, lets you order clothing, housewares, and other merchandise from leading retailers.

EXPLORING MULTIMEDIA WITH
PETER GABRIEL

WITH SUCH INNOVATIVE, technologically advanced videos as *Sledgehammer* and *Steam* under his belt, Peter Gabriel was destined to climb aboard the multimedia bandwagon. We caught up with the British musician while he was in the United States promoting his first interactive CD-ROM title, *Xplora 1: Peter Gabriel's Secret World* (\$49.95; 800-428-8200 or 714-553-6678).

MU: How did Peter Gabriel, musician, make the leap to Peter Gabriel, interactive "experience" designer?

PG: I think it's a logical extension of work I'm already doing — music, with some sort of visual presentation. It's exciting for me that all these peripheral activities are becoming focused and realizable in multimedia. It's perhaps like being alive at the birth of cinema or television.

MU: What's the concept behind your first title?

PG: It's an attempt to allow people inside the work of a musician and all its aspects — visual, musical, and conceptual. It gives them a chance to see the work as a collage kit for their own exploration, rather than just a linear journey.

MU: Did the Mac contribute to your involvement in digital stuff?

PG: On the last tour, we had something like 50 Macs on the road. The Mac runs deep in the way we do things. I think that although there are lots of great things in other formats, the Mac is certainly very attractive for creative people.

MU: Do you play around with animation, music, and video-effects systems?

PG: In a marginal way. I love brainstorming and getting involved with visuals, but the painstaking work I'm happy to leave to others.

MU: Any plans to create interactive works on a larger scale?

PG: Brian Eno, Laurie Anderson, and I — along with other artists — have this dream project of doing "experiences" as a logical extension of CD-ROM titles. We see my label, Real World Multimedia, producing material for both the home and the urban-experience center. One of our projects is like a theme park, but unlike other futuristic parks, its aesthetic would incorporate the handmade, the high-tech, and the natural as much as the digital. As long as the label produces lumps of stuff and we're in the business of creating stuff, the park has a flavor of existence rather than of vaporware.



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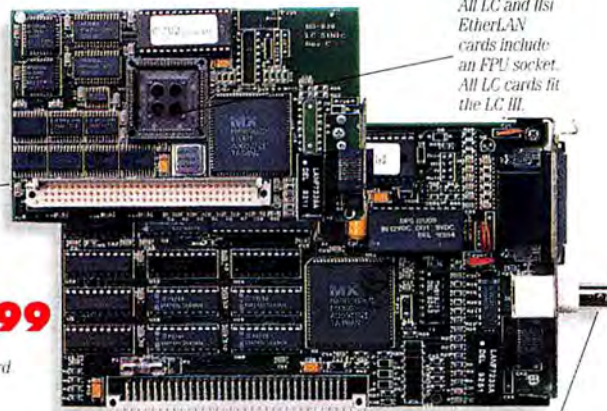
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Asanté	MCLC10THI	\$229	Yes ¹	No	No	5 Years	Yes ²
Farallon	EtherMac LC-TP	\$189	Yes	Yes	No	Lifetime	Yes ²

1. Not all Asanté boards are Apple Register Compatible.
2. SNMP compatibility still requires AppleTalk Connection or TCP/IP Connection from Apple.
Prices verified on 8/20/93.

*Applies only to "in-stock" items; orders must be placed by 4:00 pm Eastern time, Monday through Friday, in the continental United States.



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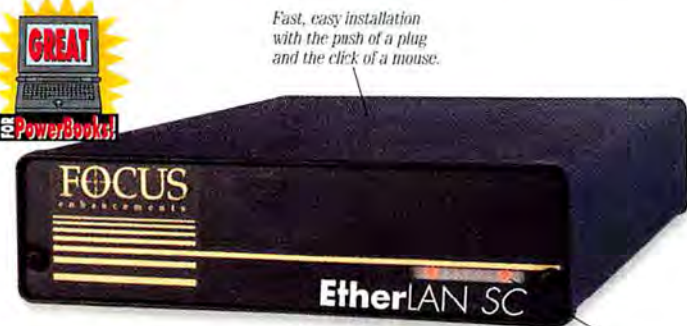
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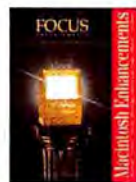
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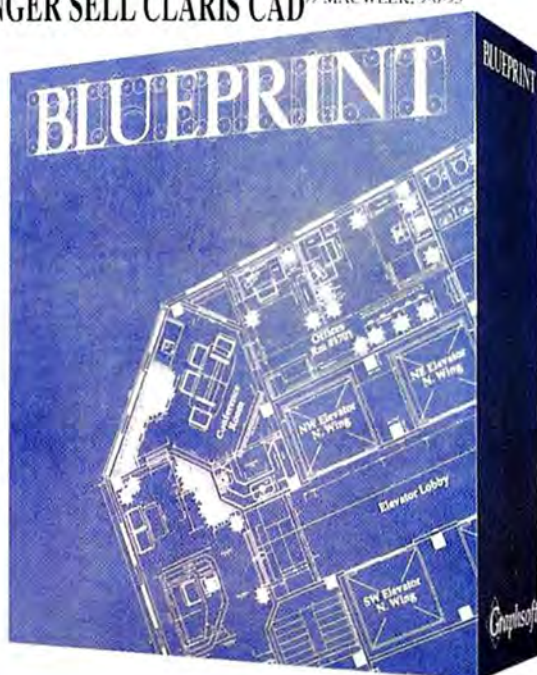
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- ☐ DXF translator - extra charge
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- ☐ editable fills
- ☐ beziers
- ☐ wall-join
- ☐ chamfers
- ☐ tolerancing
- ☐ 9 saved views
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3D CAD:

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Integrated Database/Spreadsheet:

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Programmability:

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2D CAD:

- ☐ smart walls
- ☐ Smart Cursor for locating snaps
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REVIEWS & Quick Clicks

MacTools 3.0 / This comprehensive data-protection tool kit now has background disk checking, supereasy file recovery, and more.

MACTOOLS 3.0 IS A WORTHY successor to previous versions of Central Point Software's popular utilities package. This latest release moves MacTools ahead of its chief rival, The Norton Utilities for Macintosh (NUM), by adding new features and improving on existing ones. Although a few minor features have been removed, what remains is a well-integrated and easy-to-use package, capable of handling most of your data-recovery, data-management, and virus-prevention needs.

Disk Fixing

At the heart of the MacTools package lies DiskFix, an application that analyzes and repairs most hard- and floppy-disk problems. Although Central Point has sped up the program's scanning operations, performing a complete analysis can still be painfully slow. In a speed contest, NUM would win hands down. DiskFix can detect some problems NUM misses, however, and the program offers a commendable amount of flexibility in its scanning options. You can, for example, select which problems to scan for in a given check run and defer those that take longer to detect (the manual points out which ones these are) to times when you will not need your Mac for a while. You can also configure DiskFix to schedule unattended disk scans and repairs, using MacTools' Scheduler extension.

The new version of DiskFix performs several checks that the previous version didn't, including some that power users have long been accustomed to performing manually whenever they troubleshoot a problem. It identifies and repairs damaged Desktop, System, and application files; reports Apple Disk Bug problems; and identifies a faulty system-software installation. You can even rebuild the Desktop file of any disk from within DiskFix, eliminating the need to reboot.

Another handy new feature shows up when DiskFix detects a problem: It asks if you want to create an emergency startup floppy disk. This option copies a minuscule System file, any enablers in your System Folder, and the DiskFix application to a 1.44-megabyte floppy disk, making DiskFix the startup application. MacTools also prompts you to build your emergency DiskFix floppy disk at installation time, but in case you fail to do so (or in case you happen to misplace the floppy disk), it's nice to have

a second chance when you really need it. The ability to create a custom startup floppy disk is important these days, because Apple's use of system enablers

makes it virtually impossible to create a single floppy disk that can start up every Macintosh.

Background Checks

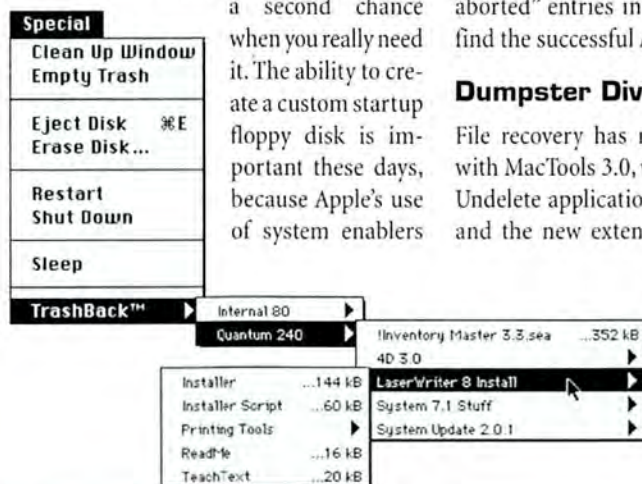
AutoCheck is another new feature designed to extend the usefulness of DiskFix. It's a companion application to DiskFix that runs in the background and scans for problems after your Macintosh has been idle for a period of time specified by the user. You can configure AutoCheck to scan your volumes continuously, twice a day, once a day, or once a week. When it detects problems, it instructs you to run DiskFix to repair them.

In our tests, we set AutoCheck to scan once a day but found that it seemed to run several times a day instead. A call to tech support revealed why: AutoCheck never had the chance to complete a check run before we interrupted it by going back to work; consequently, it was continually attempting to execute a *complete* scan of our volumes to fulfill its once-a-day requirement. Although this scenario made sense, we didn't like having to sort through a lot of "AutoCheck aborted" entries in DiskFix's report log to find the successful AutoCheck scans.

Dumpster Diving

File recovery has never been easier than with MacTools 3.0, which includes both the Undelete application offered in version 2.0 and the new extension TrashBack. Trash-

Back keeps track of files you delete and puts their names in a hierarchical menu that is accessible from the Finder's Special menu. To recover a file, simply select its name from the menu, and TrashBack puts it back



MacTools' new TrashBack feature makes file recovery a snap — just select the deleted file's name from the hierarchical TrashBack menu. Right away the file shows up again on your disk.

Reviews Rating Key

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

right where it was when you deleted it (in the same folder, for example). If you need to recover a file that isn't available through TrashBack, you can run the Undelete application to perform file-type-signature searches or text searches over the entire disk and copy selected sectors to a fresh text file.

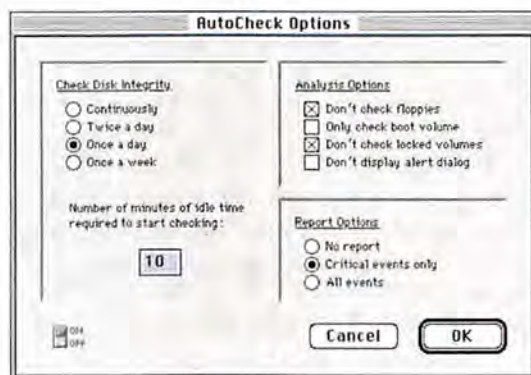
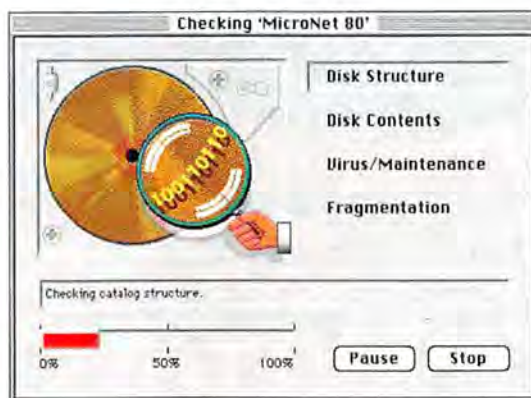
TrashBack's ingenious approach to file deletion — one first used in Utilitron's Guaranteed Undelete — is designed to maximize your chances of recovering recently trashed files. When a file is emptied from the Trash, TrashBack "protects" the file by moving it to an invisible folder at the disk's root level and fooling the Finder into thinking the file has been deleted. The user sees the amount of disk space occupied by the deleted file as available. At the system level, however, the volume bit map is not updated to report that the file has been deleted and that its space is available. When the system subsequently needs disk space occupied by a TrashBack-protected file, space is purged from the TrashBack invisible folder in chronological order, starting with the oldest deleted file. This method helps ensure that a file deleted five minutes ago is much more likely to be recoverable than one deleted two weeks ago — unlike with undelete utilities such as NUM, which don't control the order in which file space is reallocated.

Rounding Out the Field

Two more features new to this version of MacTools are FastCopy and DriveLight. FastCopy lets you quickly copy floppies, compare floppies, and create floppy image files in proprietary and Apple DiskCopy formats. FastCopy can also read NUM Floppier and FastCopy 1.2 image files.

DriveLight is like NUM's DiskLight on steroids. It's a control panel that displays menu-bar indicators for a variety of system activities, including SCSI activity, AppleTalk traffic, and serial-port traffic. You can configure DriveLight to display any, all, or none of these indicators, and you can also edit how they look with DriveLight's convenient icon editor.

As in version 2.0, MacTools also includes antivirus, disk-optimizer, and backup utilities, and FileFix has been updated to include support for Word 5.1 and Excel 4.0 files (repairing bundle bits, checking for damaged



Central Point has enhanced DiskFix in MacTools 3.0 to diagnose several additional disk problems. Scanning for all available problems can be time-consuming, but you can shorten the scan time by specifying which problems to scan for — or use the new AutoCheck feature to start scans automatically in the background when your Mac is idle.

resources, and so on). The backup utility is nice, but it's slow in comparison to the leading stand-alone backup utilities, such as Dantz Development's Retrospect Remote and DiskFit. MacTools' virus-protection capabilities fare much better in comparison to those of stand-alone programs; MacTools provides as many features as most dedicated antivirus programs, and Central Point offers updated signature files and updating instructions as new viruses are found.

Removed from MacTools is the Mirror control panel — similar to NUM's File-Saver control panel — which kept track of deleted files and maintained invisible copies of directory volumes in case of accidental hard-disk erasure. TrashBack replaces Mirror's deleted-file function, but the loss of a saved-volume directory may be a concern for some users. Central Point explains that a saved-volume directory is invariably out-of-date, so having a spare copy doesn't help as much as you might think. As

an alternative, you can use DiskFix's Recover Files option to build a new catalog tree from scratch, a method that ensures the directory information will be accurate.

Also removed from version 3.0 is DiskEdit, a disk editor. Although some power users may have found DiskEdit a helpful tool, the majority of MacTools users won't find its absence a problem.

The Bottom Line

For those who already own MacTools 2.0, the latest release is a must-have. Version 3.0's TrashBack facility is truly a welcome addition — it's hard to imagine an easier way to recover deleted files. The speed enhancements to DiskFix aren't as dramatic as we'd like them to be, but we do appreciate the thoroughness of the program's scans and the flexibility of its scheduling options. MacTools' backup utility isn't ultrafast, but it is convenient, and MacTools' antivirus capabilities are exemplary.

Overall, MacTools 3.0 is an impressive and comprehensive collection of disk-recovery tools that overshadows rival The Norton Utilities for Macintosh. Combining data-recovery, antivirus, and backup features in a single \$149.95 package, MacTools is a fantastic bargain. Experienced Macintosh users as well as novices should find it a useful addition to their software library. / Gary T. Kratzer

MacTools 3.0

RATING: ★★★★★

LIST PRICE: \$149.95; upgrades, \$49.95.

PROS: Thorough and flexible disk-repair utilities. Easy file recovery. Strong virus-protection capabilities. Bargain price.

CONS: Slow disk-scanning and backup operations.

COMPANY: Central Point Software, Inc., Beaverton, OR; 503-690-8090.

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CIRCLE 38 ON READER SERVICE CARD

REVIEWS Financial Management

Andrew Tobias' TaxCut and MacInTax / Tax time is less taxing with these two software assistants.

THERE'S NO WAY AROUND IT. Not even the best software program in the world can completely eliminate the loathsome task of tax-form preparation. But the right tool can definitely make the process less painful. Mac users have two such tools to choose from — MECA Software's Andrew Tobias' TaxCut and ChipSoft's MacInTax. If you haven't yet tackled a computerized tax return, you can take heart: Each program provides new features designed especially for novices.

Andrew Tobias' TaxCut

MECA has enhanced the 1993 version of TaxCut with a handful of new features. Most notably, the program is now equipped with an on-line tax-tutoring system called Navigator. Tailored primarily for those new to tax preparation, Navigator uses 18 large color icons. Each icon represents one step of the preparation process — from the gathering of basic biographical information to the final review of your completed form. Clicking on an icon introduces you to the corresponding step by presenting a brief explanation and a Q&A button, which initiates the interview process. You begin entering tax data by answering a series of questions.

Of course, if you don't want or need this kind of hand-holding, you can open any of TaxCut's IRS forms and enter the data directly. And if you used TaxCut or MacInTax to prepare your taxes last year, you can import some of the data directly into your new tax return. You can also import financial data from a money-management program such as Intu- it's Quicken.

TaxCut's strength lies in the program's help utilities. Keywords within the interview sections are linked to explanatory notes. You can also summon help by searching for specific words in a

form or an instruction set. For example, you can perform a search on the word *insurance* and immediately call up any passages pertaining to that topic. Also, you can set your own bookmarks in the Help dialog box, so you can return to a specific section of a help document quickly the next time you need it.

With its help notes, the program provides useful and down-to-earth advice on how to reduce your tax liability. At the same time, however, it doesn't encourage recklessness. "If you think you have found a loophole," cautions one of the help messages, "chances are there's a rule somewhere that prohibits it."

Another helpful feature is TaxCut's Shoebox, a utility that helps you figure out how to categorize the bits and pieces of tax information you may have collected over the year. Suppose you have a receipt but aren't sure where the expense should appear on your return. TaxCut asks what the receipt is for and then directs you to the correct portion of the appropriate form where you should enter the data.

The program also lets you compare as many as four tax scenarios for tax-planning purposes.

When you've completed the data-entry process, you can use TaxCut Auditor to scan your forms and worksheets for mistakes. The Auditor spots inconsistencies and omissions and notifies you with a report, making it easy to go back and fill in missing information quickly. For a hassle-free overview of your entire return, you can also produce a



Quick Tax Summary — a compact, eight-line condensation of your data that shows your filing status, income, and taxes to be refunded or paid. TaxCut also offers an electronic-filing option through Universal Tax Systems, but you can't use your modem to send the file. You must mail your return to the service on a disk.

TaxCut is full of helpful tax assistance, but the program's interface sometimes lacks polish. In several forms, for example, long text entries are truncated unexpectedly, even though the fields appear to be long enough to contain all the text. Also, IRS instructions are displayed in the ugly 9-point Monaco font, making the bureaucratic IRS jargon seem even more impenetrable. And no preference options are available for customizing the interface.

Still, once you discover how much easier it is to prepare a tax return with the help of your Macintosh, you'll probably want to purchase a state edition of TaxCut. Unfortunately, MECA offers only two TaxCut state editions — one for California and one for New York. Residents of the other 48 states will have to prepare their state forms the old-fashioned way.

MacInTax

MacInTax has many features that match TaxCut's, but it's more polished and powerful. Not only can MacInTax calculate your taxes and generate sharp-looking IRS-approved returns but it can also translate your tax scenario into a series of colorful charts and graphs for subsequent analysis.

Like TaxCut, MacInTax provides carefully guided assistance for novices. The EasyStep interface reduces the tax-preparation process to eight basic steps, each represented by a large, colorful icon. Clicking on one of the

icons takes you to the corresponding step.

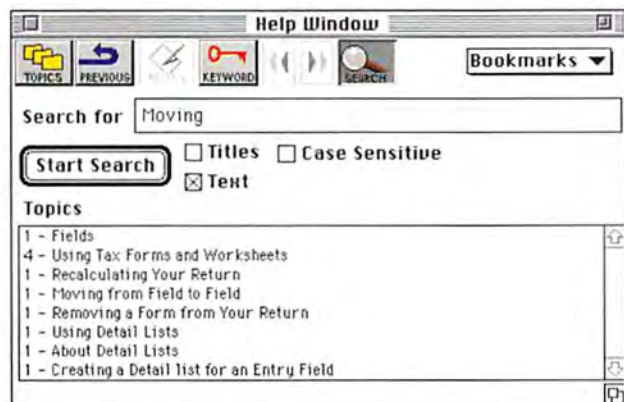
For those who used last year's version of MacInTax to prepare their 1992 forms, the program does a smooth job of importing the data into the 1993 forms. You can import general information (names, social security numbers, and the like) as well as numeric data, which you can update as needed.

Also like TaxCut, MacInTax uses an interview format to guide you through the preparation process. As you answer the program's well-worded questions, MacInTax collects the answers, pulls up the appropriate form, and fills in the blanks. The program computes fields involving calculated values automatically and fills them in for you.

Although MacInTax and TaxCut have many features in common, we found that MacInTax handles things with a zip and sophistication that TaxCut lacks. Pop-up menus and animated effects enhance the Interview mode, and the forms MacInTax generates more closely resemble real IRS tax forms. The program even comes with its own special TaxType fonts that enable it to accurately display and print the forms.

We also liked the fact that MacInTax lets you customize the operation of the program to suit your working style. For example, you can reset the Tab key so that it moves you from field to field vertically, rather than from left to right — a real time-saver when you're working with columns of numbers on a form.

Both MacInTax and TaxCut allow you to annotate your returns with notes and reminders for personal reference, but if you have a Mac that supports sound recording, MacInTax lets you record voice annotations as well. You simply select a line on a tax form and choose the Reminder Note command from the Tools menu. And like TaxCut,



TaxCut's new Navigator (far left) uses colorful icons to guide you through each phase of tax-form preparation. The Help Window (left) lets you scroll through a list of topics or search for specific instructions.

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CIRCLE 4 ON READER SERVICE CARD

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BYTE Magazine
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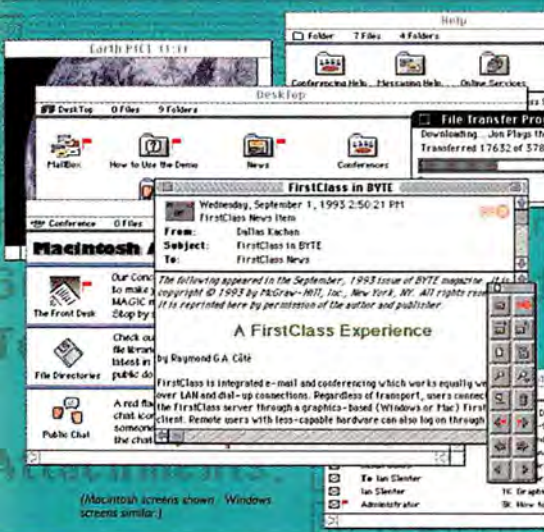
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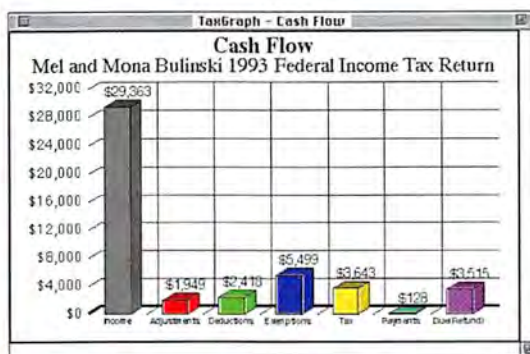
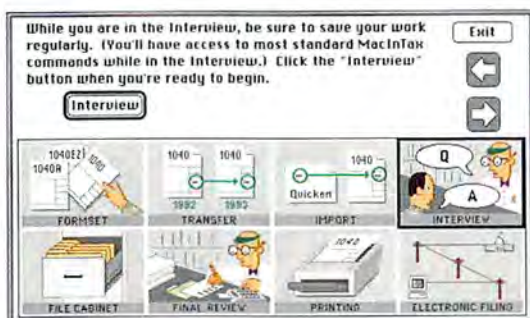
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CIRCLE 64 ON READER SERVICE CARD

REVIEWS Financial Management



MacInTax's EasyStep interface (top) helps you fill out your tax return by asking questions and recording the answers in the appropriate blanks. The new TaxGraph feature transforms your data into an informative chart (bottom).

MacInTax gives you a concise tax summary.

Users of previous versions of MacInTax will spot many enhancements in the 1993 version. For example, the Final Review command, which checks your work for omissions and errors, has a Deduction Finder that flags areas in which you did not take deductions for which you might be eligible.

Also new is the Tax Graph command, which creates four attractive charts for income sources, deductions, cash flow, and tax analysis. The color 3-D pie and bar charts look great and provide instant visual feedback on your tax year.

When you've finished entering your information, you can print IRS-approved forms and send them in the conventional manner. MacInTax also provides three ways to file your taxes electronically — you can send either a disk or a printed return to a transmission service (which is equipped to send returns directly to the IRS), or you can use a modem to transmit the data to the service directly. The package includes the basic telecommunications software required. Returns sent electronically are processed quickly and refund checks are usually issued within ten days.

MacInTax's help features are complete

and concise and include well-written instructions for each section. However, we didn't find MacInTax's tax advice as detailed and helpful as TaxCut's. MacInTax should come bundled with the official IRS instructions for each form, although these instructions were missing from the HeadStart version we reviewed.

MacInTax offers state versions of the program for filing state income-tax forms in 20 states. A tax planner is sold separately for \$19.95.

The Bottom Line

TaxCut and MacInTax each provide a nonintimidating, step-by-step approach to tax-form preparation that makes tax time easier to bear. Of the two, we give the nod to MacInTax. Its slick, well-designed interface; customization options; and charting and calculation facilities make

it a tax-software powerhouse. TaxCut is a solid offering that features excellent help facilities, but it's not quite as refined and fully featured as MacInTax. / Joseph Schorr

Andrew Tobias' TaxCut for Macintosh

RATING: ★★★★★

LIST PRICE: \$29.95, Federal Edition; \$24.95, State Edition; \$9.95, HeadStart Edition.

PROS: Excellent help facilities.

CONS: Interface lacks polish. No customization options.

COMPANY: MECA Software, Inc., Fairfield, CT; 800-820-7462 or 203-255-1441.

READER SERVICE: Circle #402.

MacInTax

RATING: ★★★★★

LIST PRICE: \$39.95; \$19.95, Personal Tax Planner.

PROS: Good-looking screens and forms. Charting and calculation facilities. Customization options.

CONS: Limited tax advice.

COMPANY: ChipSoft, Inc., San Diego, CA; 800-964-1040 or 602-295-3080.

READER SERVICE: Circle #403.



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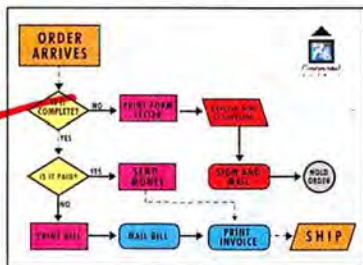


The Notebook Printer II. It works where you work.



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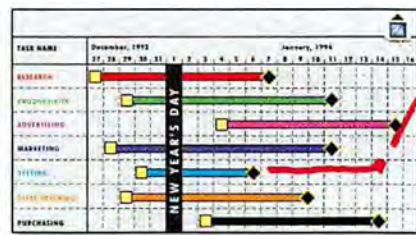
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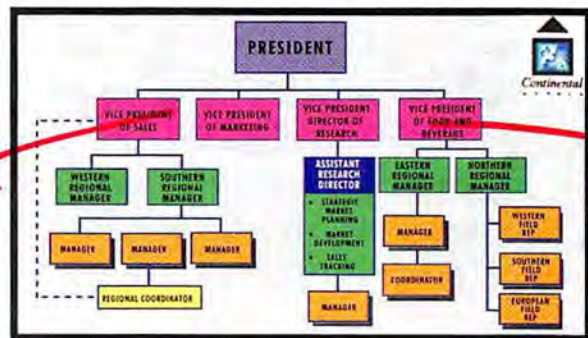
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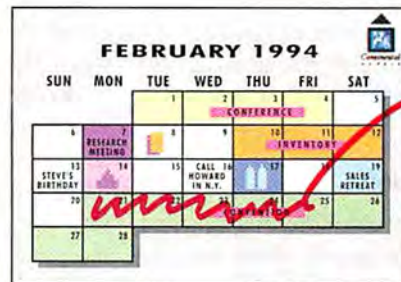
may even want to access the extensive business art library to add a distinctive symbol to your document.

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flux. Comments and changes will come dribbling in. But you'll be well-equipped. Because with ClarisImpact, making multiple changes is as easy as a single edit. One click can update your spacing, alignment, connections, text and graphic content. Allowing you to concentrate on your message, not the medium.

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like a better idea.) No other program lets you do this as quickly or as easily.



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Fargo Primera / Photo-realistic color printing that's easy on the budget.

UNTIL RECENTLY, IF YOU wanted a photo-realistic printer for color proofing, your choices were few and expensive. High-end dye-sublimation printers offer superior image quality, but their prices typically start at about \$10,000. A newly introduced upgrade for the \$995 Fargo Primera thermal-wax printer changes all that. For a list price of less than \$1,500, Mac users can now dabble in the world of continuous-tone color.

Small Wonder

Measuring 14 x 6 x 10 inches and weighing just less than 16 pounds, the Primera is small enough to fit easily on the corner of your desktop. Portability and size are important, because the only way you can connect the Primera to your Mac is via the Mac's serial port — network printing is not an option.

the serial port of the Mac.

But the big news is that Fargo now sells a \$250 photo-realistic-dye-sublimation upgrade kit for the Primera that contains drivers for Macs as well as Windows machines, a small sample (ten pages) of dye-sub paper and ink ribbon, and a spare ribbon-cartridge holder. Refills of the dye-sub materials cost about \$3 per page, and the thermal-wax media cost less than 50¢ per page.

The dye-sub upgrade that makes the Primera such a deal is accomplished exclusively in software. Once it's been upgraded, the Primera becomes quite versatile — to save time and expense when you're proofing, you can opt for a down-and-dirty pre-proof in thermal-wax mode and then switch to dye-sub mode for the final proof. To switch between modes, you simply swap ink cartridges and paper and select the appropriate setting in the Page Setup dialog box of your application.

A fun option is to use Fargo's newly available transfer material. By printing a mirror image onto this specially formulated paper, you can transfer any image to a shirt or tote bag with a household iron. The transfer paper costs less than \$2 per sheet and is sold in packs of 10 or 100.

If you think the Primera's price for photo-realistic output seems almost too good to be true, you're right — there is a catch. The Primera lacks both a processor and onboard RAM. Functioning as a *dumb* printer, it relies on the processing power of the host Mac to render images. This strategy, combined with the deathly slow 2.5-ppm rating of the print engine, makes for very slow going indeed.

In our tests, the average printing speed of the Primera was about 50 percent of the speed of its leading thermal-wax and dye-sub competitors. The Primera's speed in printing a Photoshop document compared the most favorably to its rivals', averaging a quick 4 minutes in thermal-wax mode and slightly less than 11 minutes with the dye-sub option.

At the other end of the spectrum, due to

the Primera's QuickDraw engine and lack of onboard RAM, speed suffered the most with our five-page Microsoft PowerPoint document. We clocked the Primera at about 17 minutes in thermal-wax mode (most thermal-wax printers average between 3 and 8 minutes in our tests) and a whopping 83 minutes with the dye-sub option — that's more than four times as long as with the other dye-sub printers we tested.

During testing, the Primera earned itself the dubious nickname "the color fax," due to its low 203-dpi output resolution. However, Fargo has developed some interesting dithering options for photographic images that help compensate for the printer's low resolution. Text anti-aliasing features in the photo-realistic driver also help counteract the resolution problem, but for nonphotographic images, the resolution is clearly less than ideal.

Another stumbling block is the Primera's lack of PostScript, which disqualifies it from use as a final-output device for high-end graphics programs such as Adobe Illustrator. With Adobe Type Manager installed on the test Mac, the Primera did an adequate job of reproducing type from programs such as QuarkXPress and PowerPoint, but its jaggy rendering of placed EPS graphics and gradient fills highlights the problems inherent in QuickDraw engines.

The Bottom Line

Although you won't mistake the Primera's photo-realistic output for that of its higher-priced competitors, the printer's low price makes the Primera well worth considering. More important, at less than one-fifth the cost of most other dye-sublimation printers, the Primera's pricing heralds some exciting changes to come in the affordable low end of the color-imaging market. / Anita Epler

Slow but affordable, the Fargo Primera does double duty as a thermal-wax and dye-sublimation printer.

Priced at just short of \$1,000, the original release of the Primera thermal-wax printer gained wide acclaim in the Windows market but went largely unnoticed in the Mac community until the release of a QuickDraw driver in the middle of last year. The Mac interface kit — priced at about \$200 — includes a QuickDraw driver, Apple's ColorSync software, and an interface cable that connects the parallel port of the printer to

Fargo Primera

RATING: ★★

LIST PRICE: \$995; Mac interface kit, \$199.95; photo-realistic upgrade kit, \$249.95.

PROS: Inexpensive photo-realistic color output.

CONS: Slow.

COMPANY: Fargo Electronics, Eden Prairie, MN; 800-327-4622 or 612-941-9470.

READER SERVICE: Circle #404.

Now Contact / Speed plus flexibility add up to a winning contact manager.

IF YOU USE NOW SOFTWARE'S elegant workgroup calendar program, Now Up-to-Date, you'll welcome the latest addition to the company's PIM line. As you can guess from its moniker, Now Contact is a full-featured contact manager. Even for those who don't use Now Up-to-Date, Now Contact does a good job of simply managing contacts; if you combine it with the calendar features of Now Up-to-Date, the program truly shines.

Point of View

Now Contact presents two main views of your contact information — a List view and Detail view. The Detail view resembles a standard Rolodex-style card. You have a variety of options for modifying the way the program presents contact data in its views, or you create your own view. The program allows as many as 250 views — you control font, style, size, color, the fields displayed, and the location of each field.

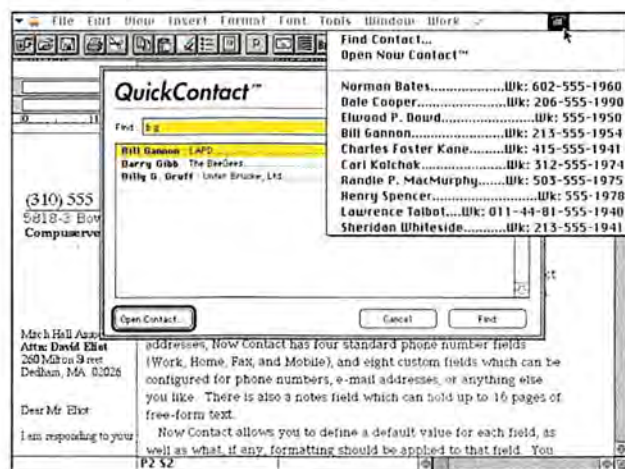
In addition to the standard fields for name, company, title, and address, Now Contact's Detail view provides four phone-number fields (Work, Home, Fax, and Mobile) and eight additional fields that you can custom-configure for e-mail addresses and the like. The Notes field can contain as many as 16 pages of free-form text.

To streamline the process of entering new contacts, Now Contact lets you specify a default value for each field and provides formatting options such as automatically capitalizing the contents of the entire field or just the first letter of each word.

To help you organize your contacts, the program lets you create categories and assign contacts to them. Now Contact ships with four default categories — Family, Business, Personal, and General — and you can create as many as 256 additional categories for each contact file.

You can also use keywords such as Friends and Coworkers to classify contacts more precisely and to generate special lists. Although each contact can belong to only a single category, you can assign as many as 128 keywords to a contact. In addition, you can assign the same keyword to contacts

in different categories. Finally, you can create sets of categories — for example, a set called Personal Stuff that displays the Personal and Family categories but not the Business and General ones.



Now Contact's QuickContact pull-down menu provides instant access to frequently used contacts — without requiring you to load the program.

Now Contact supports a wide variety of search criteria, and its search and sort facilities are among the fastest you'll find.

The word-processing module lets you create and print letters, envelopes, labels, address books, and faxes. You can also use this module to create mail-merge documents. One of the handiest features is the QuickContact control panel, which places a phone icon in the menu bar that lets you pull down a menu with the names and phone numbers of your most frequently used contacts from within any application — without loading Now Contact.

As good as Now Contact is on its own, it's most useful when teamed with Now Up-to-Date 2.1. Using Apple events under System 7 (which Now Contact requires), you can link events in Now Up-to-Date with specific contacts in Now Contact. The links enable you to view the Now Up-to-Date appointments, notes, and to-do items relating to the linked contacts from within Now Contact. Conversely, while you're working in Now Up-to-Date, you can view all the contacts associated with an event. And you can link more than one contact to an event — a feature that

rival After Hours' DateBook Pro lacks.

From within either Now Software program, you can create items managed by the other. For example, in Now Contact, you can create new calendar events; in Now Up-to-Date, you can create new contacts.

Our one major quibble about Now Contact is that its dialing support is lackluster. Unlike that of most other contact managers, Now Contact's dialing facility doesn't keep track of your current area code and automatically strip long-distance prefixes and area codes from or add them to the numbers you dial. Instead, you must edit each number when dialing.

Another minor inconvenience is the Keyword window, which remembers its on-screen location but sometimes resets its size when you open it.

Both of these problems will be addressed in a maintenance release the company hopes to have ready before this review appears.

The Bottom Line

Now Contact provides all the essential contact-management features that businesspeople and home users could ask for. Among noteworthy strengths are the program's brisk performance, flexible views, and outstanding documentation. Last but not least, Now Contact's tight integration with the Now Up-to-Date calendar program provides you with a complete personal organizer. / Jeffery Sullivan

Now Contact 1.0

RATING: ★★★★★

LIST PRICE: \$99; bundled with Now Up-to-Date, \$179.

PROS: Fast searches and sorts. Flexible views. Links to Now Up-to-Date.

CONS: Poor dialing support.

COMPANY: Now Software, Inc., Portland, OR; 800-237-3611 or 503-274-2800.

READER SERVICE: Circle #405.

Symantec C++ / Rough edges mar Symantec's state-of-the-art development tool.

IF SYMANTEC'S MUCH anticipated Symantec C++ for the Mac worked the way it should, it would fill the bill as the perfect Mac development environment. Symantec C++ combines a powerful object-oriented language with the familiar rapid-development environment of Symantec's THINK C. A plus for team development projects is the inclusion of Apple's SourceServer, which provides robust version-control features for team projects. Unfortun-

everything that's in the THINK C product, plus the C++ compiler, sample code, C++ libraries, and THINK Reference files documenting the class libraries.

At the heart of Symantec C++ is THINK Project Manager, which helps developers manage their projects. Projects can contain C code, C++ code, resources, and noncode files such as diagrams and system documentation. Project Manager keeps track of all these components, processes compil-

ables with the appropriate compilers, and keeps non-compileables in their place. A project window displays all the code segments of a project in collapsible outline form similar to the Finder's list view in System 7.

Project Manager can also send and receive Apple events. You can, for example, set it up to request information from

THINK Reference. Furthermore, you can customize Project Manager, using scripts created with UserLand Frontier or AppleScript. Symantec C++'s powerful AppleScript support also enables you to manage team interaction with shared scripts or to create customized environments for individual programmers.

Symantec's text editor has few fans, but luckily, you can replace it with your own favorite third-party editor. Bare-Bones Software's excellent BBEdit 2.5, for example, works well with Project Manager.

In addition to support for the C++ language, Symantec C++ includes an updated debugger that can handle function calls in expressions.

A Question of Reliability

Symantec's THINK C development environment boasts a reputation for rapid development cycles, user friendliness, and fast compilation. Although the speed and friendliness of the Symantec C++ compiler continues that tradition, its reliability does not.

The initial release of Symantec C++

(Symantec C++ 6.0) suffered from a variety of serious bugs. The Rez resource compiler, for example, didn't handle all Rez types properly, and Rez files sometimes didn't get compiled. There were also some serious problems with the linker and with the use of templates in the C++ compiler. Version 6.0.1 corrected many of these shortcomings, but enough remain to justify concern. Another update is scheduled for release by the time this review appears, but the seriousness of the product's problems raises real questions about Symantec's commitment to delivering reliable development tools to the Mac market.

Documentation consists of a user guide and a class-library guide, both generic to Symantec's various development environments, as well as a 100-page guide to the C++ compiler. The C libraries are documented electronically.

Experienced C programmers will find the manuals adequate, if rough in spots. The compiler guide does a good job of explaining standards compliance and porting issues as well as how to use the compiler in the Project Manager environment. It won't teach you the C++ language, however.

The Bottom Line

Symantec C++ is a serious C++ native-code compiler that boasts several strengths. Its advanced language features and powerful, friendly development environment make it easy for you to develop code, whether you're working alone or as part of a large team. However, these impressive features are compromised by the product's disturbing bugs. Even at this writing, six months after its introduction, Symantec C++ continues to suffer from problems, despite the bug fixes in version 6.0.1. With this in mind, it's hard to promote this promising development environment. / Michael Swaine

Symantec C++ 6.0.1

RATING: ★★★

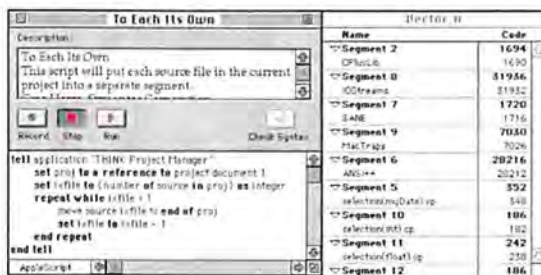
LIST PRICE: \$499.

PROS: Powerful object-oriented language. Native-code compiler. AppleScript support.

CONS: Serious bugs.

COMPANY: Symantec Corp., Cupertino, CA; 800-441-7234 or 408-253-9600.

READER SERVICE: Circle #406.



Symantec C++'s AppleScript support provides developers with a powerful tool for automating projects.

nately, however, Symantec's concept for Symantec C++ is better than the execution of the product.

Native Compiler

Symantec C++ is a true native-code compiler for the C++ programming language, not a preprocessor: It generates object code directly rather than producing C code that developers must then compile. This makes it faster to use than the Apple Macintosh Programmer's Workshop CFront development environment.

The Symantec product generates code for the Motorola 68000-to-68040 family of processors as well as for the 68881 and 68882 coprocessors. Among the C++ language features it implements are multiple inheritance, nested classes, and templates. Exception handling excluded, Symantec C++ conforms closely to the C++ language described in *The Annotated C++ Reference Manual* and currently under review by an ANSI standards committee.

Symantec C++ will look very familiar to anyone who's used its predecessor, THINK C. That's because the package includes



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CIRCLE 24 ON READER SERVICE CARD

Caere OmniScan / A bargain-priced all-in-one scanning package.

THE CAERE OMNISCAN LETS you do virtually anything you can think of with the humble bit map, including faxing, scanning, manipulating images, and doing OCR (optical character recognition).

The OmniScan package includes a standard handheld scanner, a SCSI-interface box (which must be the first or only device on your SCSI chain), and three programs: OmniPage Direct, for scanning and recognizing text via OCR; FaxMaster, for sending, receiving, and recognizing the text in faxes; and Image Assistant GS, for scanning and editing gray-scale images.

You can use OmniPage Direct to scan text directly into any application that allows text entry; for images, you need to scan into Image Assistant GS. You scan by drawing the handheld scanner across or down the page. If the text block or image is narrow enough (about 4 inches or less), you can scan in one pass; otherwise, the OmniScan scanner can stitch your multiple passes into a seamless whole by eliminating overlapping areas.

OCR Travails

As with other handheld scanners, you need the hand/eye coordination of a fighter pilot if you want accurate character recognition. Spines of books and magazines can cause troublesome wavy-edged scans, and the bump from the scanner falling off the bottom of a book or magazine page often prompts OmniPage Direct to complain that you're pulling the scanner too fast and make you start all over again. In addition, OmniPage Direct's OCR facility is sensitive to off-kilter scans — the kind that Light Source's Ofoto image-scanning program has no problem reorienting automatically. In our tests, incorrect or unrecognized characters appeared in about one word in six.

We encountered even more errors recognizing text in faxes received through FaxMaster and a fax modem — and the process was slow. Running on an SE/30 with 8 megabytes of RAM, FaxMaster took about 78 minutes to recognize a seven-page, low-resolution fax set mostly in Times. Unfortunately, you can't simply banish FaxMaster to the background.

Faxing and Image Fixing

Sending faxes via FaxMaster is about as convenient as with similar programs. For monitoring and controlling the progress of a fax, the FaxMaster Control DA gives you more-powerful controls than you get in STF Technology's FAXstf FaxStatus window. However, FaxMaster can't alphabetize an imported database (although it alphabetizes any database you create from scratch). There's also no utility to temporarily free up your serial port for data communications; you can't even do so by turning FaxMaster off through the Chooser.

Image Assistant GS works just fine at scanning and manipulating gray-scale images and has a basic complement of editing tools. The program's ability to stitch overlapping images together is impressive, although it can take a while for a big image.

The Bottom Line

Taken individually, none of the OmniScan package's components offers the best available approach to carrying out its function. The scanner is comparable to other handheld scanners — that is, it's less accurate and trickier to use than a flatbed scanner. OmniPage Direct lets you scan text into any application that can handle text input, but it's not adept at deciphering off-kilter scans. FaxMaster can recognize characters in an incoming fax, but expect a long wait. The also-slow Image Assistant GS meets its modest image-manipulation goals, but it's no Photoshop. Still, you do get all these elements for just \$595. If you have less money than time, the OmniScan package might be just the ticket. / Joe Clark

Caere OmniScan 1.0

RATING: ★★

LIST PRICE: \$595.

PROS: Faxing, scanning, image editing, and OCR for a bargain price.

CONS: Slow. OCR accuracy difficult to achieve.

COMPANY: Caere Corp., Los Gatos, CA; 800-535-7226 or 408-395-7000.

READER SERVICE: Circle #407.



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DeltaGraph Pro 3 / The Mac's premier business-charting program features a new look and more charting options.

NOT CONTENT TO REST ON their laurels, the developers at DeltaPoint have again set a new standard in business-charting excellence, with DeltaGraph Pro 3. Improvements to DeltaPoint's powerful charting program include an overhauled interface, new chart types, enhanced color capabilities, support for Apple events and AppleScript, links to data-generating applications, and streamlined layout options for slide presentations.

Commanding Interface

DeltaGraph's new interface is the most visible change to the program. At the top of the screen, the new command bar provides buttons for common tasks. The bar also provides buttons for switching among DeltaGraph's four views: the Data view, for entering data in a spreadsheetlike format; the Chart view, for creating and modifying charts and graphs; the Outline view, for entering and editing titles and bullet points; and the Sorter view, for an overview of all of your charts. The command bar, whose buttons change according to the selected view, is optional, so you can hide it if it gets in your way. The buttons are intelligently arranged and wisely chosen. Many of the icons that indicate button functions are hard to decipher, however, and several buttons have icons that look almost identical.

The new navigation bar, at the bottom of each page, houses controls that enable you to move easily among chart pages. The status bar, at the bottom of the screen, describes the location and size of selected objects and offers a handy Stop button that interrupts screen redraw until you've finished modifying a chart. Also new are support for multiple open documents, so you can now drag and drop objects between documents, and three new tools — eyedropper, shadow, and blend — in the toolbox.

DeltaGraph's outliner has been significantly revamped to mimic the outliners of dedicated presentation programs. It's now more integral to the program and provides stronger, more intuitive links to chart pages.

Text entries made in the outliner are now automatically linked to titles and bullet points on chart pages, and you can rearrange chart pages by dragging their titles in the Outline view. Still, DeltaGraph's outliner lacks several high-end features, such as the ability to apply text formatting from outliner entries to the corresponding slides, as you can with Microsoft PowerPoint.

Also new is DeltaGraph's support for the CMY, CMYK, HSL, and RGB color models. It's easier to select colors that go well together too, thanks to DeltaGraph's newly added support for Pantone ColorUP color schemes.

Most interesting among DeltaGraph's 13

57. If this dizzying array leaves you confused about which chart type to use, take heart. DeltaGraph now includes a built-in Chart Advisor to help steer you in the right direction. By selecting your data and providing DeltaGraph with some basic information about your intended audience, you can get Chart Advisor to suggest appropriate chart types. This feature can't substitute for a good grasp of data-display methods, but it nonetheless offers a decent starting point.

Even more useful is DeltaGraph's new ability to generate sample data based on the graph type you've chosen. By arranging dummy data in the data sheet, DeltaGraph eliminates the guesswork involved in structuring data correctly. All you need to do is replace the dummy data with your own.

You can import data into a DeltaGraph data sheet in the following formats: tab-, space-, custom-, and comma-delimited text; WKS; SYLK; Trapeze; Excel; and CA-



DeltaGraph Pro 3 adds even more chart types, including the pictograph shown here, to the previous version's impressive collection. The new Chart Advisor helps you select the right chart type for your specific requirements.

new chart types is the pictograph. As with the program's other chart types, you're offered a plethora of customization options. Investment pros will welcome the new Open High Low Close chart and Candlestick chart, useful for illustrating stock prices. Other new chart types include three varieties of histograms and three kinds of vector charts. Beefed-up control over 3-D charting cements DeltaGraph's dominance in this area.

The new chart types bring DeltaGraph's total number of chart types to a whopping

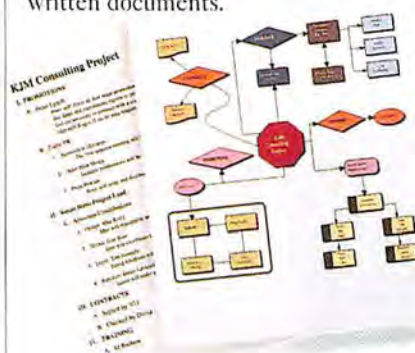
Cricket Graph. You can also link to external data with publish-and-subscribe or save a few steps by creating direct links to spreadsheet data.

Key to any dedicated charting program is the ability to easily export charts to other applications, such as presentation and

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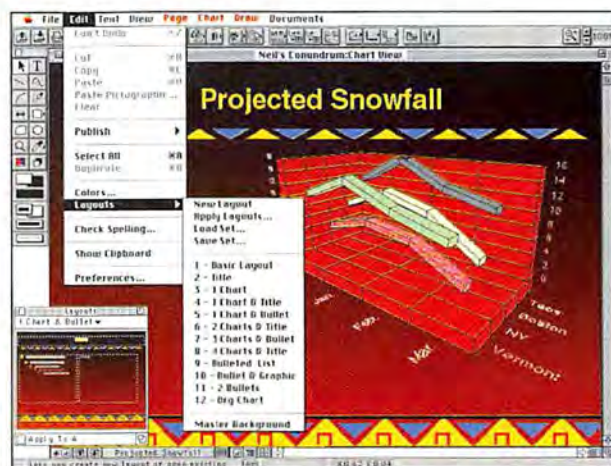
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DeltaGraph Pro 3's presentation module includes the new Smart Layouts, a handy time-saving feature that works much like the master-slide concept of dedicated presentation programs. When you change a master layout, all charts based on the master change accordingly.

page-layout programs. DeltaGraph's export formats now include Adobe Illustrator 3.2 as well as the previously supported EPS, PICT, and Scrapbook.

If you need to make numerous similar graphs, you can now save time and keystrokes by creating scripts with AppleScript or UserLand Frontier. Sophisticated scripts can virtually transform DeltaGraph into a graphing engine. For example, a script could direct a spreadsheet application to send data to DeltaGraph and then instruct DeltaGraph to create a graph and drop it into a page-layout document.

Presentations may be a secondary focus for DeltaGraph, but the program offers a solid set of features in this area too. The features aren't as sophisticated as those in dedicated presentation programs, but they do a serviceable job. A slide-show mode, 32 transition effects, a spelling checker, and the ability to print handouts help you create complete presentations. To enhance presentations, you can import graphics in PICT, EPS, TIFF, Movie, and JPEG formats.

Looking Smart

The most helpful new presentation feature is Smart Layouts. Based on the master-slide concept of dedicated presentation programs, Smart Layouts enables you to create a uniform look within presentations by applying a master to individual slides. Once you've created a master slide, you can quickly modify text formatting, colors, and graphics placement on multiple slides by modifying the master. DeltaGraph provides 36 layout templates; you can also create your own.

DeltaGraph Pro 3 is the most powerful

business-charting program available for the Mac, but it comes with a fairly steep learning curve. We found the interface somewhat confusing, with too many buttons to learn. Moreover, some interface elements are redundant; there are three ways, for example, to select a view — you can use a command-bar button, a navigation-bar button, or the View menu. DeltaPoint could greatly simplify DeltaGraph by streamlining its interface. In addition, although the curve-fitting functions work well when you're creating curved lines that link scattered data points, if you change the color of your data points, the color of the curved line doesn't change.

The Bottom Line

DeltaGraph Pro 3 offers an excellent variety of charts, superior control over chart customization, and easy data and chart exchange with other applications. Combine that with its improvements over the previous version — better presentation features, cross-platform compatibility with the Windows version of DeltaGraph Pro 3, enhanced color support, and lower price — and you've got a winner. / Shelley Cryan

DeltaGraph Pro 3

RATING: ★★★★★

LIST PRICE: \$195.

PROS: Wide selection of chart types. Accessible commands. Good slide-presentation features.

CONS: Steep learning curve.

COMPANY: DeltaPoint, Inc., Monterey, CA 93940; 800-446-6955 or 408-648-4000; 408-648-4020 (fax).

READER SERVICE: Circle #408.

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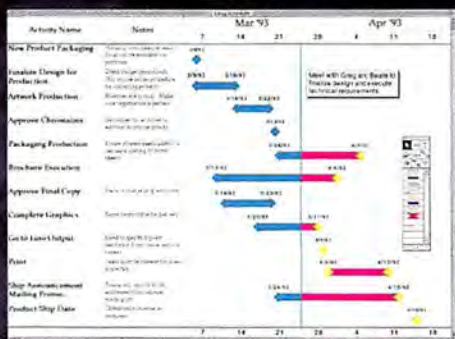
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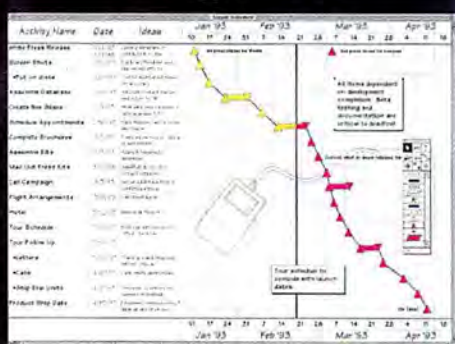
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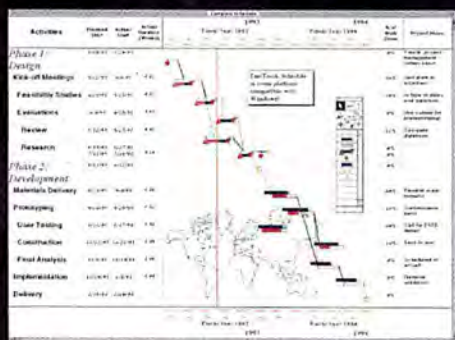
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REVIEWS Input Devices

Wacom UD-1212 and CalComp DrawingSlate / Two new tablets increase input options for digital artists.

TABLET-CRAVING ARTISTS and designers, rejoice: Drawing tablets with pressure-sensitive pens are dropping in price. The \$749 Wacom UD-1212 and the \$395 CalComp DrawingSlate offer new features at significant savings over previous models, with a lifetime warranty in each case. CAD users seeking accuracy and artists in need of elbowroom will find the 12-x-12-inch Wacom tablet an excellent choice; those with more-modest needs (and budgets) should consider the 6-x-9-inch DrawingSlate — although Wacom's 6-x-8-inch ArtZ tablet (see review, September '93, page 105) remains the best value in personal-sized tablets.

The Wacom Edge

The Wacom UD-1212 is sleek and attractive, with a footprint only slightly larger than its drawing surface. It's solidly constructed yet weighs less than 5 pounds — still light enough to rest comfortably in your lap. Its two clip-on legs can tilt the surface from nearly flat to about 6 degrees.

The tablet plugs in to your Mac's serial port and is topped with a durable see-through plastic flap, under which you can slide a letter-sized sheet for tracing purposes. You can define 12 buttons at the top of the tablet as keystrokes or macros; next to them are buttons you can use to switch between soft and firm pressure settings.

If you've never used a pressure-sensitive pen, Wacom's UltraPen stylus will spoil you. Wacom's unique capacitor technology eliminates the need for batteries, making the UltraPen feel as light as a wooden pencil. You can set the button on the stylus' barrel to correspond to a double-click, a key combination (such as those for save or undo), a signal to maintain a steady pressure, or other functions.

For \$150 extra, you can also order a four-

button mouse with crosshairs (useful for precision-engineering drawing). The programmable buttons on the mouse are a benefit, but your hand needs to arch uncomfortably to operate them. For those who do add a mouse, the UD-1212 offers a new feature of



Wacom's \$749 UD-1212 drawing tablet pairs the company's superlight UltraPen stylus with a roomy, 12-x-12-inch drawing surface; the advanced software included with the tablet is another plus. CalComp's 6-x-9-inch DrawingSlate has a heavier, more awkward stylus, but at \$395, the tablet is light on both your lap and your pocketbook.

dubious value: two-handed input. You can pull down a menu with the mouse while simultaneously drawing with the stylus (and, presumably, chewing gum). No applications supported this feature at press time.

Wacom's software is superb. It's simple for novices to understand, and the Expert mode lets gurus perform advanced feats — for instance, mapping as many as six virtual tablets on the tablet's surface, creating a custom pressure curve so the stylus responds closely to your drawing style, or saving pressure settings for different applications. For macro users, the tablet ships with Affinity Microsystems' Tempo macro-creation software and supports CE Software's QuicKeys.

We found no incompatibilities or malfunctions while testing the UD-1212 with several pressure-aware paint and draw programs. The only annoyance we encountered was with the documentation and on-line help — they're thorough but rather dry and technical. Information is scattered among two manuals and an addendum, so finding the answer you need can take a while.

CalComp's Bargain Tablet

Measuring less than a quarter inch thick and weighing less than a pound, the 6-x-9-inch CalComp DrawingSlate is the most unobtrusive full-featured drawing tablet available for the Mac. It's less attractive by far than the Wacom tablets, though, and it's more cheaply constructed: We found that plugging the DrawingSlate in to the Mac's ADB port was a struggle, and the plastic flap for tracing was flimsier than those of the Wacom tablets.

Aesthetic and construction considerations notwithstanding, the DrawingSlate's light weight and long cable length call out for you to put it on your lap. Take into account the 18 macro buttons along the top of the tablet (Wacom's similarly sized ArtZ has none), and you might find your keyboard gathering dust. Another bonus: The DrawingSlate's ADB cable sprouts an additional plug for your mouse. (Although CalComp bundles your choice of a 4-button or a 16-button mouse with its 12-x-12-inch and 12-x-18-inch drawing tablets, neither mouse is available for the 6-x-9-inch DrawingSlate.)

The DrawingSlate's stylus compares unfavorably to the Wacom UltraPen. Four batteries in the top of the stylus make it weigh three times as much as the UltraPen — which can be a big difference if you use a stylus for several hours a day. The batteries also drain far too easily if you stand the stylus tip-down when you're not using it, as we did. In addition, the two buttons on the stylus were too low-profile for our tastes; they were difficult to feel and didn't prevent the pen from rolling off the desk (as the UltraPen's one large button did). We liked the feel of the CalComp stylus' tip better than Wacom's, though; it's less rigid and gives more when pressed.

CalComp's software hasn't changed much in the past two years. It's simple and straightforward, but it lacks the robust feature set of the Wacom software.

Once up and running, the DrawingSlate performed flawlessly with all applications, although we couldn't perceive its stylus-tilt-and-height-sensing feature functioning in Fractal Painter (the only program that supported this feature at press time). The DrawingSlate boasts a higher input/output speed than the ArtZ (about 125 points per minute compared to the ArtZ's 100), but we

didn't notice a difference in day-to-day use. We were annoyed by the continuous rapid pulsing of the DrawingSlate's power light whenever the stylus moved out of range, however.

Two other concerns: We received two defective tablets before finally getting a model that worked properly, and we were unable to use the tablet with one of our test computers, a Mac IIcx with a Radius Rocket 33 accelerator card (CalComp technical support is working with Radius to resolve the incompatibility).

The Bottom Line

For those whose primary considerations are price and portability, the DrawingSlate packs a lot of bang for the buck. Its mediocre construction and clumsy pen are balanced by the light weight of the tablet, several features (such as macros) of higher-priced tablets, and a low price — the DrawingSlate costs \$150 less than the smallest Wacom tablet.

Wacom's UD-1212 is an excellent choice for discriminating users with more to spend. Wacom seems to listen carefully to user feedback, and in this case, the company responded with a winner. The tablet looks great on your desk; the stylus feels light in your hand; and the software works wonders — just as you can, with the UD-1212 as a tool. / Jim Benson

CalComp DrawingSlate

RATING: ★★★

LIST PRICE: \$395.

PROS: Light tablet. Inexpensive. Some high-end features.

CONS: Inelegant design. Heavy pen.

COMPANY: CalComp Digitizer Division, Anaheim, CA; 800-932-1212 or 714-821-2000.

READER SERVICE: Circle #410.

Wacom UD-1212

RATING: ★★★★★

LIST PRICE: \$749.

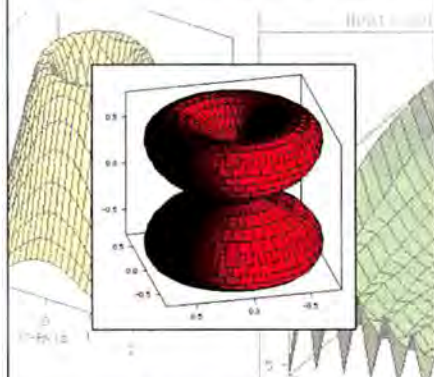
PROS: Excellent construction. Powerful software. Light stylus.

CONS: Documentation difficult to navigate.

COMPANY: Wacom Technology, Vancouver, WA; 206-750-8882.

READER SERVICE: Circle #409.

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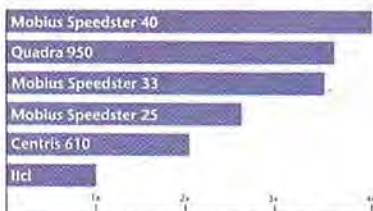
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FrameMaker 4 / Frame's publishing software makes short work of long documents.

IF YOU'RE LOOKING TO publish technical documentation or other types of long, structured documents, your best bet is not a page-layout program but a document-publishing tool. The \$895 FrameMaker has long been king of document publishing on the Mac, and version 4 continues the tradition, bringing welcome new productivity features to Frame's industrial-strength program. Major enhancements in FrameMaker 4 include a redesigned interface, advanced color support, new formatting tools and document-management features, and an extensible architecture.

Frame Makeover

FrameMaker's new interface boasts flexible menus (long and short) and simplified dialog boxes, but unlike the Windows and UNIX versions, the initial Mac release of version 4 doesn't support custom menus. According to Frame, a developer's kit that allows custom menu creation may be available by the time this review appears.

Similar to the tool bars of word-processing programs, FrameMaker's handy floating QuickAccess bar lets you issue common commands for creating and editing text, graphics, and tables. Although you can position the bar vertically or horizontally, it's a bit clumsy to use, because not all the buttons fit on the bar. You must click on arrows to page through the entire button selection.

FrameMaker's new formatting features include more-intelligently-designed paragraph- and character-formatting dialog boxes. A new formatting ruler displays pop-up menus for controlling text alignment, line spacing, and tab stops and creating and applying paragraph formats by example. A small-caps format is also now available.

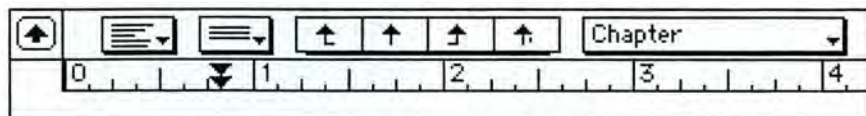
More-sophisticated color support in

version 4 enables FrameMaker to take advantage of the Pantone, CMYK, RGB, and HLS color models. Users can also easily create custom colors and add them to the pop-up color menu in the tool palette. FrameMaker can now generate spot- and process-color separations for images in DCS, EPS, and TIFF formats.

Graphics handling is also improved. You can freely rotate text and graphics by either grabbing drag handles or entering rotation angles in a dialog box. The PICT Ungroup command enables you to ungroup imported PICT objects and edit them with FrameMaker's tools. Additionally, FrameMaker 4 provides eight dashed-line patterns.

Document management has always been a key FrameMaker strength. The program now helps you track revisions by creating a composite of two versions of a document. Changes appear as conditional text. A helpful summary report lists general statistics and all revised items. FrameMaker can also create hypertext links in the composite document that enable you to jump directly to the locations in source documents where revisions were made. Similar hypertext links are available for tables of contents and indexes, making it easier to create on-line guides and manuals.

With FrameMaker's newly extensible architecture, it's now possible to enhance the program with third-party extensions similar to those available for QuarkXPress and PageMaker. The first such extension available for the Mac version is a database-publishing add-on called BrioPublish, which enables you to query and publish data from various databases across platforms. A word-count option, thesaurus, and full support for System 7 round out the list of FrameMaker's new talents.



The new formatting bar in FrameMaker 4 lets you quickly apply paragraph formats and change paragraph properties (tabs, spacing, alignment), without opening a paragraph-designer window.



FrameMaker 4's Compare Documents facility creates a composite from two versions of a document as well as a helpful Summary list of the differences between them, making revision management easy.

The program's on-line help is now context-sensitive — a big improvement over the help system in earlier versions — and the company has pared down the FrameMaker documentation to one manual. The package no longer includes documentation for MIF (FrameMaker's Markup Interchange Format) and some other esoteric aspects of the program, though. You can request the additional material, but it comes in the form of on-line manuals.

Enhancements aside, FrameMaker's core feature set makes it the premier tool for long-document publishing. The program's features include running headers and footers, system- and user-defined variables, paragraph and character styles, cross-referencing, auto-numbering, footnotes and endnotes, superb integrated equation and table editors, support for as many as 100 master pages, automatic indexing and figure listing, tables of contents, multichapter-book-building tools, an integrated drawing environment, and a library of templates.

We were impressed with FrameMaker 4, but given its stated goal of providing a word-processing and page-layout environment rolled into one, we were disappointed that it doesn't provide drag-and-drop editing. It's also odd that the new version supports conditional text in table rows but not in columns. Additionally, the company acknowledges a conflict between Adobe's Utopia typeface and an internal font used in several FrameMaker dialog boxes. Most surprising, the program's long-standing problems with footnotes are still present — a footnote that doesn't fit on its proper page is moved in its entirety to the following page — and there's still no facility for automatic endnotes.

As you'd expect from a program that provides such powerful document-publishing features, FrameMaker has a hefty appetite for memory and disk space. We recommend at least 5 megabytes of memory, and you'll need 6 to 18 megabytes of hard-disk space, depending on the installation options you choose. The program requires a 68020 Mac or better with System 6.0.7 or later and at least a 13-inch monitor. FrameMaker is compatible with QuickDraw printers but is optimized for PostScript devices (it comes bundled with the LaserWriter 8.0 driver and the necessary PostScript Printer Descriptions). Registered owners of version 3.01 can upgrade to version 4 for \$195.

The Bottom Line

For using a Mac to publish highly structured and complex documents, FrameMaker 4 has no peer. A few annoying problems with footnotes and several minor omissions aside, the latest release is a winner. Version 4 provides a variety of useful tools that help streamline the process of creating, editing, and managing long documents.

/ Gregory Wasson

FrameMaker 4

RATING: ★★★★★

LIST PRICE: \$895.

PROS: Sophisticated document-management tools.

CONS: Poor footnote and endnote handling.

COMPANY: Frame Technology Corp., San Jose, CA 95131; 800-843-7263 or 408-433-3311.

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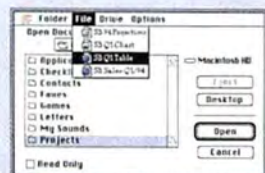


ponents are designed, tested and guaranteed to work together? Partly.

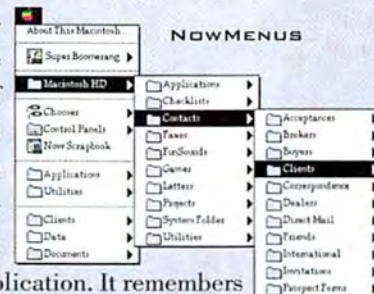
Is it because those seven components would cost you upwards of 800 dollars if you had to buy them all separately? Partly.

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SUPER BOOMERANG



NOWMENUS

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you assign hotkeys to menu commands on the fly.

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STARTUP MANAGER

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PrintJuggler / Easy printer monitoring and choosing

PRINTJUGGLER GIVES YOU a refreshingly simple way to access and monitor multiple networked printers. The System 7-dependent software consists of one extension (which creates a small, unobtrusive background application at startup). To install PrintJuggler, just drag the extension onto the System Folder icon and restart.

A Handy Printer Menu. After restarting, you'll see a PrintJuggler icon that stays in the menu bar in all applications, including the Finder. Selecting Choose Printers from the



PrintJuggler menu brings up a window in which you can select printers from all available zones. These printers then appear in the PrintJuggler menu, from which you can pick any printer, see its status, and select it as your printer — bypassing the Chooser completely.

Virtual Desktop Printers. For an even easier way to check printer status — and for drag-and-drop printing — you can have PrintJuggler put icons for particular printers onto your desktop. The

icons are automatically updated (at time intervals you specify) to reflect the printers' status: idle, busy, not found, or in error.

Although CE Software's Choosy extension for QuickKeys provides some capabilities similar to PrintJuggler's, Choosy gives no lasting visual indication of a printer's status. By keeping this information present, PrintJuggler takes a more straightforward approach. And PrintJuggler's drag-and-drop capabilities make it easy to print documents on several printers at the same time.

QuickDraw GX will also provide drag-and-drop printing to icons that show a printer's status. But GX's expected ship date (the second quarter of this year) has slipped before. GX will also be a major change to your system, with heavier demands than PrintJuggler. If you print to multiple printers and you want a simple way to make your life easier now, try PrintJuggler. / Ken Gruberman

PrintJuggler 1.0 ** / LIST PRICE: \$49. COMPANY: Sonic Systems, Inc., Sunnyvale, CA; 800-535-0725 or 408-736-1900. READER SERVICE: Circle #412.**

OrangePC 2.01 and SoftPC 3.1 / Two ways to put a PC into your Mac

IF YOU THINK APPLE'S upcoming Mac-and-PC-in-one machine is a big breakthrough, think again. Mac users have been running DOS and Windows on Macs for years, using either Insignia Solutions' inexpensive-but-slow SoftPC software or the quick-but-costly OrangePC card from Orange Micro — both recently updated.

High-End Hardware. The OrangePC remains the high-end choice. This PC-on-a-NuBus-card includes as much as 16 megabytes of RAM and one of three types of 386 or 486 microprocessors: a 25-megahertz Intel 80386sx, a 25-megahertz 486SLC, or a new 50-megahertz IBM 486SLC 2/50 with an internal cache. You also get a PC AT bus slot for an add-in card, a VGA video chip, and parallel and serial ports. The OrangePC package comes with DOS 6; an 80387sx math coprocessor is optional. The OrangePC is implemented as a coprocessor, running DOS or Windows at the speed of a PC without slowing down your Mac applications.

Version 2.01 puts the OrangePC's software-based features on par with SoftPC's. Mac and DOS applications can now share Finder and AppleShare folders, CD-ROMs, and other mounted volumes. In addition, the OrangePC now lets you print from DOS or Windows applications to PostScript printers over AppleTalk. You can also now copy and paste between DOS and Mac applications.

A Software Bargain. Insignia offers two versions of its software-only product: SoftPC Professional (DOS only) and SoftPC with Windows. Both emulate an Intel CPU in software, resulting in much slower response than what you get with the OrangePC. What you lose in speed, though, you save in dollars: SoftPC costs less than \$500; the 486 versions of the OrangePC cost as much as some actual PCs. (In either case, if you want to run Windows, you should also factor in possible RAM costs, because Windows itself takes at least 8 megabytes and performs better with more.)

Version 3.1 of SoftPC has two notable improvements. First, it's

about 30 percent faster, although it still doesn't compare to a 486 PC. The second is a built-in ability to access PC networks, including those based on NetWare, LAN Manager, LAN Server, and Windows for Workgroups.

SoftPC is still easier to install and has better documentation than the OrangePC. We ran into a bug that corrupted the SoftPC Preferences file immediately after installation, but a quick call to Insignia's tech support resolved the problem.

Apples and Oranges. Some buyers will want to wait for Apple's Mac/DOS hybrid, the Quadra 610 DOS Compatible, which is expected to ship before July. Its 25-megahertz Intel 486sx chip gives the Quadra 610 DOS Compatible microprocessor power similar to that of a low-end OrangePC card. And you get a Mac and a PC in one box for about

\$2,000 (those who already have a Quadra 610 can buy Apple's PC card separately for less than \$500). Apple's card also offers built-in Super VGA video (Insignia supports only 8-bit VGA; the OrangePC lets you add a Super VGA card). However, unlike SoftPC and the OrangePC, Apple's product offers no networking for PC applications, and it has neither the PC slot nor the ports provided by the OrangePC. And of course, it's not available yet.

Right now, the choice is simple. If DOS is all you need, SoftPC Professional makes good sense. It's economical, and the new built-in networking lets Mac users easily gain access to PC networks. SoftPC with Windows is OK for the occasional Windows jaunt, but OrangePC is your best bet for frequent Windows use. Yes, it costs as much as some actual PCs, but it also *does* as much as a PC — without taking up any extra room on your desk. / John Rizzo

OrangePC 2.01 ** / LIST PRICE: 25-megahertz 80386sx, \$599; 25-megahertz 486SLC, \$1,599; 50-megahertz 486SLC 2/50, \$1,974 (volume discounts available). COMPANY: Orange Micro, Anaheim, CA; 714-779-2772. READER SERVICE: Circle #413.**

SoftPC 3.1 ** / LIST PRICE: SoftPC Professional 3.1, \$325; SoftPC with Windows 3.1, \$499. COMPANY: Insignia Solutions, Mountain View, CA; 800-848-7677 or 415-964-5434. READER SERVICE: Circle #414.**



CryptoMactic / Easy file encryption

WHAT DO LOVE LETTERS, tax records, and new business proposals have in common? They're all too sensitive to leave lying around unprotected on your hard disk. CryptoMactic, from Kent-Marsh, offers five levels of encryption for documents and applications and also lets you "incinerate" files, using similar schemes.



A replacement for MacSafe II in the Kent-Marsh line of security software products, CryptoMactic is well designed and extremely easy to use.

Click 'n' Code. CryptoMactic consists of an extension and an application called Crypto-

Mactic Administrator. Installing the CryptoMactic extension places a new menu in the Finder's menu bar. To encrypt a selected file or group of files, you simply choose Encrypt from this new menu (or you can press Command-1) and then select the method of encryption you want from a dialog box and enter a key-combination code as many as 16 characters long. To decrypt a file, you double-click on it and enter the code in the resulting dialog box.

Secure or Mega-Secure. Two of the five encryption methods, LightningCrypt and QuickCrypt, are proprietary algorithms developed by Kent-Marsh. Each provides a fast way to encrypt your files securely enough for most purposes. The other three — DES, DES-CBC, and Triple-DES — are based on the Department of Defense-approved Data Encryption Standard ANSI X3.92-1981 specification;

they're slower but more secure. DES is the plain-vanilla version, which even the best hacker would have only a 1-in-70-quadrillion chance of cracking. DES-CBC adds a "cipher block chaining" routine, and Triple-DES adds a second code-key layer. Bottom line: No one gets in without the key.

With CryptoMactic, you can create self-decrypting files similar to the self-extracting archive files (SEAs) most compression software creates. Using this option, you can securely encrypt a file and send it to others who don't own CryptoMactic — all they need is the code key.

Crackproof Trashing. CryptoMactic also offers a secure file-trashing option as well as easy file trashing from the keyboard. Just select the files you want trashed, and type a key combination; a dialog box lets you choose either EasyTrash (recoverable) or Incinerate (files can't be recovered, even with file-recovery software). Another key combination bypasses the dialog box and erases the files according to your preset preferences. You can set the preferences in the password-protectable Administrator application, which also lets you override file encryption (in case you forget your code key or oversee users who do).

If you need to protect sensitive information from possible snoopers, CryptoMactic should be your first choice. There's nothing easier to use or harder to defeat. / Tom Petaccia

CryptoMactic 1.0.1 **** / LIST PRICE: \$99. COMPANY: Kent-Marsh Ltd., Houston, TX; 800-325-3587 or 713-522 5625. READER SERVICE: Circle #415.

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LineShare / Prevent serial-port traffic jams

IT'S A TYPICAL telecommunications nightmare: You try to dial an on-line service, receive a fax, or begin an AppleTalk Remote Access session, only to find that your Mac's serial port isn't available — some other communications application has grabbed the port and just won't let go. You have to quit applications, unplug your modem, and sometimes even restart your Mac to make the port available again.

No More Port Hogging. LineShare, from Stalker Software, is designed to head off such serial-port gridlock. This small, straightforward control panel allows several applications to monitor a single serial port simultaneously without conflicts. That means you can run a telecom program, fax software, and AppleTalk Remote Access all at the same time, without the programs arguing about which one has control of the port.

In essence, LineShare emulates a Hayes-compatible modem. It, rather than your actual modem, connects to the serial port. Then, as calls are made or received, LineShare routes the information to the appropriate communications application, depending on the type of call. Each communications program you're running is registered with LineShare as a separate "virtual support."

Not in the Script. Configuring LineShare involves opening the control panel and selecting a script that's compatible with your modem and telecom software. Unfortunately, the 18 scripts Stalker provides with LineShare (which are identified rather obscurely by chip set rather than by modem model) will probably leave many modem

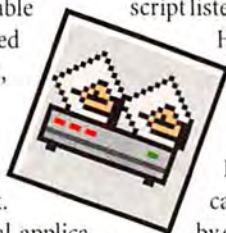
users out in the cold: Most of the scripts are designed for high-speed modems that have error-correction features requiring a special hardware-handshaking cable. Even the so-called Generic modem script listed as supporting "any modem" was incompatible with our Hayes-compatible Zoom 2,400-bps fax modem.

PowerBook Problems. Because the LineShare software keeps your Mac's communications ports perpetually open, it's impossible to put a LineShare-equipped PowerBook to sleep, even after you've quit all of your communications programs. You have to disable line sharing manually by opening the LineShare control panel and detaching each of the subports you've created.

LineShare is also completely inoperable with the Duo's combination printer/modem port. The documentation ignores this incompatibility, and Stalker's tech support couldn't provide a workaround.

Still, LineShare is a worthwhile product if you have a modem supported by the included scripts (the documentation also gives you instructions for building custom scripts, but this isn't a simple process). Stalker's claim that LineShare can help you avoid the expense of adding dedicated telephone lines is a bit of an overstatement; even with LineShare, only one device can actually use a communications port and telephone line at any given moment. Still, LineShare can put an end to some annoying serial-port conflicts. / Joseph Schorr

LineShare 2.0 * / LIST PRICE: \$79. COMPANY: Stalker Software, Inc., Larkspur, CA; 800-262-4722 or 415-927-0364. READER SERVICE: Circle #416.**



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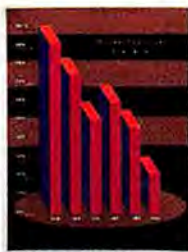


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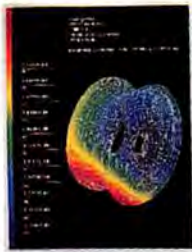
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can do. Of course, the Phaser 300 may not come with its own built-in sharpener, but hey, with color like this,

Tektronix

you can forget about things getting dull.

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The 9th Annual Editors' Choice Awards

by the editors of *MacUser*

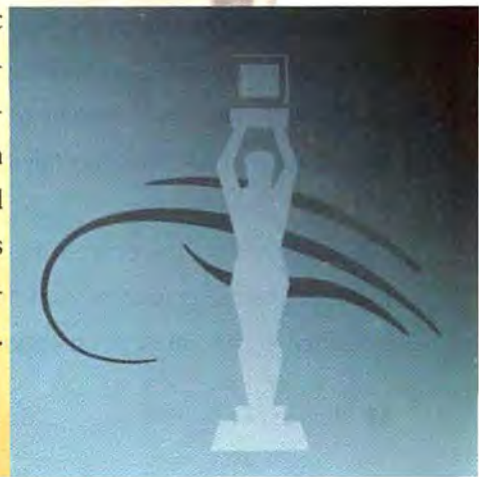
Was 1993 the dawn of the personal-digital-assistant era? Or was it the year in which powerful database and accounting applications finally made the Mac viable in large cross-platform corporations? Was this really, truly the year of the CD-ROM? Or was Apple's 1993 like Queen Elizabeth's 1992, an *annus horribilis* that saw not only personnel crises and sagging profits but such Mac model mayhem that customers could be heard saying, "It's a Quadra. It's a Centris. It's a Quadra . . ." What should we make of 1993?

If the 9th annual *MacUser* Editors' Choice Awards are any indication, 1993 was all these things and more.

Getting Personal, Making Connections

It was also a year in which the notion of personal computing captured the public's imagination with visions of scooting down the information highway, personal digital assistant (PDA) in hand. Although the Newton and other similar devices received mixed reviews, personal information managers (PIMs) really took off. Stand-alone, single-user information managers are passé. The watchword now is *integration*, with calendar programs adding contact-management features and address books providing calendaring and to-do lists for multiple users.

Integration extends to corporations too. Ethernet became more the norm than the exception, with Ethernet standard on high-speed printers and built in to many Mac models. Farallon's EtherWave makes installing Ethernet as simple and flexible as installing the much slower LocalTalk. With System 7 Pro and PowerTalk, Apple incorporated electronic mail and messaging as part of its operating system, opening the door for automated cross-application work-flow systems.



Software tailored for corporate environments rose to the challenge of cross-platform integration too. Accounting on the Mac finally seems poised for prime time. Great Plains Dynamics proved that a high-end, cross-platform accounting package can be fast, flexible, and true to its Mac roots. The corporate environment also welcomed products such as Omnis 7², which gives users point-and-click access to large databases residing on different servers in cross-platform environments.

Making Media

After annual announcements since the mid-'80s, the year of the CD-ROM finally arrived. Double-speed drives became the new standard — with internal units extremely popular in new Macs, such as the Performas. CD-ROM content exploded this year as well, but only a few titles stood out as fulfilling the promise of the technology.

In movies, MTV, and multimedia, Macs were behind the scenes — and on the screen. Desktop-video-production software and hardware improved significantly. But most users probably saw more Mac-generated video on television than they did on their own computer screens.

The most mature segment of the Mac industry — desktop publishing — showed signs of life in 1993, with major upgrades to key products. The explosion of plug-in filters for Adobe Photoshop and Xtensions for QuarkXPress proved that core applications can spawn entire industries for enterprising third-party vendors. New image-editing technologies, such as HSC Software's Live Picture, point to new directions for the future of Mac desktop publishing.

Pumping Pages

On the hardware side, the buzzword was *fasterbettercheaper*, with storage devices routinely hitting the gigabyte-plus mark. Today for the same amount of money as a year ago, you can get double the capacity — and better performance to boot. PowerBook users can now buy tiny 2.5-inch drives that pack 340 megabytes of data.

It was a good year for printers too. The resolution standard for mainstream laser printers rose from 300 dpi to 600 dpi, and resolution-enhancement technologies for sharp-looking type



Best New Presentation Product

Astound 1.0

Creating striking presentations that incorporate QuickTime movies, animations, and a stunning variety of special transition effects is easy with Gold Disk's Astound 1.0. With its slick, well-designed interface and familiar slide-based approach, business presenters can feel as comfortable with this program as with any of the traditional, static-slide-based programs.

Finalists

With the most robust collection of chart types available for the Mac, DeltaPoint's DeltaGraph Pro 3 also offers an excellent slide-show module. Tailored for multimedia professionals, Passport Producer Pro 1.0, from Passport Designs, boasts the most comprehensive set of media-integration tools of any Mac presentation program.

and graphics became common. Prices also declined. You can easily find PostScript laser printers for less than \$1,000.

But despite some truly spectacular efforts, 1993 won't go down in history as a year for great products. A sluggish economy, turbulent times at Apple, and anticipation of the PowerPC Mac caused many companies to conserve resources.

Testing and Honoring Products

On a lighter note, software designed to entertain and educate children blossomed this year. All told, our editors looked at close to a hundred children's products this year — causing one five-year-old consultant to whine, "Daddy, I'm tired of testing software. Can I just play now?"

That's how we all felt after the grueling months we spent deciding which products deserve a MacUser Eddy Award.

The Eddy Awards are not a popularity contest. There are no forms to fill out, no hoops to jump through, no favors to curry. MacUser's editors spend months sifting through, evaluating,



Best New Accounting Package

Dynamics

This year marks a turning point in Mac accounting software, with the introduction of Great Plains' *Dynamics*. Mac-based accountants now have a program that's as fast and flexible as the high-end accounting packages produced for DOS machines but that still retains its Mac interface and ease of use. This modular cross-platform program is organized by business task and can easily be customized to suit your business's needs.

Finalist

Perfect for the home office, *Best Books 1.0*, from Best!Ware, is a solid, easy-to-use bookkeeping program that requires no formal accounting training to master.

Best New Personal-Finance Program

Quicken 4

Imagine a personal-finance program so easy that it seduces you into tracking your finances electronically — that's *Quicken 4*, from Intuit. New features such as QuickFill (which guesses what you're typing, based on previous entries) and Qcards (context-sensitive help) make checkbook entries a breeze. Other powerful options: investment tracking, loan amortization, enhanced graphing, and electronic VISA statements.

Finalists

If you want to print checks on plain paper, Aatrix's *CheckWriter Pro 6* is the answer. It also offers warnings, reminders, and investment tracking. *WealthBuilder 3.0*, from Reality Technologies, offers futuristic financial planning, with access to an on-line investment network, and more.

and arguing about the merits of all the products released during our eligibility period. In deciding which products deserve an Eddy nomination, we always make utility and value key considerations, but innovation and overall quality are also important factors. After wrangling for hours to narrow each category to three products, the editors vote by secret ballot.

In addition to choosing the best overall hardware and software products of the year, we give three special awards. We reward the year's best new technology, one that will have an impact on future product development and how we use our Macs. And because creating all these great products requires great people, we recognize the excellence of the individuals behind the products with the John J. Anderson Distinguished Achievement Award and the Derek Van Alstyne Rising Star Award, named in honor of two *MacUser* staff members who died in the 1989 earthquake.

And now, maestro, if you please . . .



Best New Data-Management Product

Omnis 7²

Blyth Software's *Omnis 7²* (version 2.1) is the premier development environment for large organizations looking to build cross-platform mission-critical applications. With built-in connections to large-scale SQL databases, the client/server environment provides a host of well-designed features that help corporate developers prototype, develop, deploy, and maintain large-scale applications across multivendor networks.

Finalists

Statisticians looking for the best exploratory data-analysis tool need look no further than Data Description's *Data Desk 4.1*, which enables users to view complex patterns in data before hypotheses testing begins. With its accessible interface and time-saving built-in procedures, *4th Dimension 3.0*, from ACI US, is a powerful tool for creating sophisticated Mac workgroup applications quickly and easily.



Best New Input Device

JABRA EarPHONE Streamline AV

The JABRA EarPHONE Streamline AV unleashes the power of the new AV Macs by providing an integrated audio interface to the AV technologies. The EarPHONE combines a microphone and speaker into one small earpiece that fits comfortably in your ear. Because you don't have to be facing your Mac to give audio commands, the EarPHONE gives you greater flexibility when you're working. It can also be used with telephones and videoconferencing applications.

Finalists

The Abacus, from Key Tronic, is an innovative numeric keypad that lets you do your calculations off-line and send the results to any application. Designed to fit on a crowded desktop, the Wacom ArtZ Tablet is a small graphics tablet that features excellent software controls and a batteryless, cordless pen.



Best New Portable Computing Product

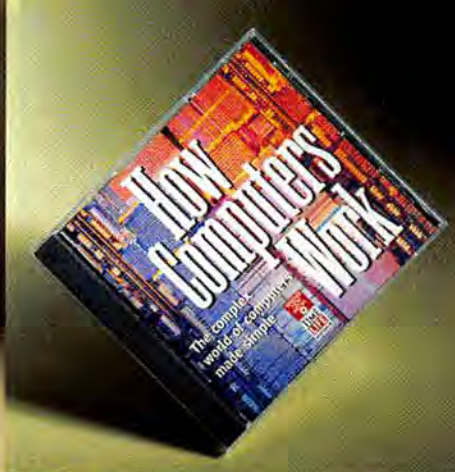
Hewlett-Packard DeskWriter 310

PowerBook users now have access to high-quality color printing on the road. The Hewlett-Packard DeskWriter 310 is a slim, sturdy inkjet printer. Weighing just 4.3 pounds, it offers 300-dpi output on plain paper, transparencies, and labels. An optional sheet feeder holds 60 sheets. Designed for people on the go, the DeskWriter 310 runs off a rechargeable battery (100 pages per charge) or from a 10.5-ounce AC adapter.

Finalists

For presentations from your Duo, the E-Machines Presenter Dock is a compact dock with ports that connect to Mac or SVGA monitors, LCD panels, and televisions. You get 256 colors too. Addressing the most vexing need of PowerBook users, Technöggin's PowerPlate Series keeps your PowerBook running three or five times as long as a standard battery.





Best New Utility

QuickKeys 3.0

If there ever was a workhorse Mac utility, CE Software's macro program **QuickKeys 3.0** is it. This latest version is perfect for new users, providing more shortcuts, better controls, and easier access to macros. For high-end users, **QuickKeys 3.0** adds speech recognition for the AV Macs (you can use your voice to trigger shortcuts) as well as more scripting capabilities, including AppleScript support.

Finalists

Conflict Catcher II, from Casady & Greene, helps you track down extension and control-panel conflicts, including three- and four-way conflicts. It's also a good extensions manager. **MacTools 3.0**, from Central Point Software, combines data recovery, virus protection, trash recovery, and backup in one fast, easy-to-use package.

Best New Organizational Tool

Now Contact 1.0

Maintaining schedules at the office and at home takes a step forward with **Now Contact**, Now Software's new personal-address-book application. It offers seamless integration with **Now Up-to-Date 2.1**, **Now's** multiuser calendaring program, enabling **Now Contact** users to create dynamic links between entries in their address books and appointments in their **Now Up-to-Date** calendars.

Finalists

DayMaker Organizer 3.0, from Pastel Development, integrates contact management into this personal-calendaring application. Version 3.0's innovative **People Picker** makes finding contact information easier than ever. **ON Technology's Meeting Maker XP 1.0** adds the ability to work off-line to an innovative calendaring product that simplifies setting meetings among busy people with conflicting schedules.

Best New Data Resource/Edutainment Product

How Computers Work

Standing out in today's CD-ROM market requires both content and style. **How Computers Work**, from Time-Warner Interactive Group, succeeds on both counts. Everything the general-interest user could want to know is covered, but it also has an exceptionally attractive interface. You can even try demonstration applications from publishers such as Microsoft, Claris, and Quark.

Finalists

A Hard Day's Night, from The Voyager Company, gets credit for being the first CD-ROM to contain an entire classic film as well as numerous supplementary materials. **The Random House Unabridged Dictionary** is easily the most useful and thorough dictionary available in electronic form, and it carries a bargain price.

John J. Anderson Distinguished Achievement Award

John Norstad

WDEF, nVIR, ZUC, Scores — these terms strike terror into the heart of many a Mac user. But thanks to the efforts of John Norstad, it's possible these viruses never managed to get a foothold in your computer system to attack and destroy your data.

John authored **Disinfectant**, a free antivirus utility designed to combat the number of Mac viruses proliferating in the late '80s. No sooner would news circulate about a new strain of virus than John would post a new version of **Disinfectant** on the Internet. For many users, the sight of the **Disinfectant** icon — a medieval shield with a V monogram — appearing at startup helped them breathe a bit easier.

In addition to consistently updating **Disinfectant** as new viruses appear, John provides an unprecedented degree of support for a piece of software from which he gains no financial reward. **Disinfectant** is no hack job either; antivirus-software developers readily admit that **Disinfectant** is of commercial quality.

All this comes from a man who develops software in his spare time. A computer expert for 31 years, John developed his first Mac software in 1984 when he helped design Odesta's **Helix** database system. He wrote **Disinfectant** while working as a network analyst at Northwestern University, where he still works today, developing Mac network software for the university.

Recently John embarked on another volunteer software effort. **NewsWatcher** is his Mac-client software for the Internet-based **NetNews** system, a large noncentralized discussion forum. **NewsWatcher** provides an easy-to-use front end for a vast amount of information and makes "net surfing" possible directly from a Mac, with no UNIX required.

John Norstad proves that one man can make a difference. Macintosh computing is safer, thanks to **Disinfectant**, and **NewsWatcher** opens a window from the Mac desktop into the world of the Internet. John Norstad's altruism and the value and quality of John's efforts have helped Mac users all over the world.



Best New Publishing-Productivity Tool

Aldus Fetch 1.2

The Mac lets us create digital music, movies, photographs, and illustrations, but locating the files is a nightmare. **Aldus Fetch 1.2** provides a way to catalog it all. Fetch lets you search for and — within seconds — retrieve an image of a QuickTime movie or Photoshop image, using any of several search criteria. Fetch features support for 38 file formats, a superb zoomable preview function, and the ability to edit files within their original applications.

Finalists

Tomorrow's paperless-publishing dream may become reality, thanks to Adobe Acrobat 1.0, with its easy-to-use cross-platform and application-independent document-exchange system. Canto Software's Cirrus 2.0 is state-of-the-art scanning software that gives you unprecedented control over images, from input to output. It's also AppleScript-able.

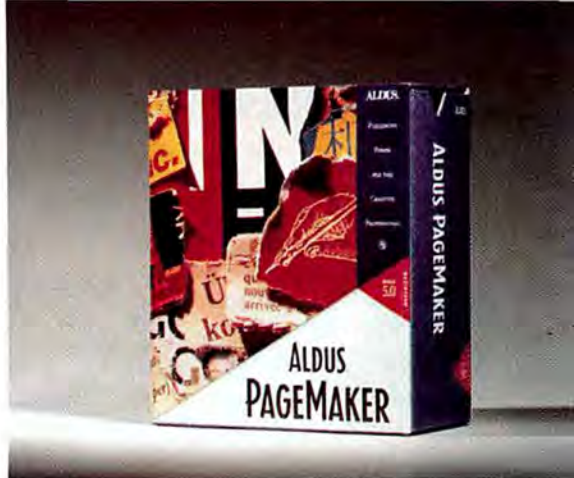
Best New Page-Design Program

Aldus PageMaker 5.0

In a strong year for page-design programs, **Aldus PageMaker 5.0** stands out for adding high-end publishing features to a proven program. In its most sweeping upgrade to date, Aldus added new color controls, such as the ability to automatically add imported EPS colors to the color palette and support for direct separation of CMYK images. Its enhanced Control palette lets you change font, type style, leading, kerning, rotation, paragraph style, and more without using the menu bar.

Finalists

In version 4.0, Frame Technology's **FrameMaker**, the de facto standard for publishing technical documentation, gets color and a streamlined interface as well as a pack of powerful formatting features. With the addition of the EFIColor extension, **QuarkXPress 3.2** puts color management where it belongs — in the hands of publishers.



Best New Visual Resource

Fontek DesignFonts Series

There's been an explosion of picture and symbol fonts, and no product exemplifies the genre better than **Fontek DesignFonts**, from Letraset. The collection includes quirky everyday objects, bold geometric faces, rustic woodcut figures, striking papercut borders, and more. The fonts are sold on disks, so you can scale, distort, and color them within any application — on any Mac.

Finalists

America Remembered 1.0, from Boraventures Publishing, taps a new resource for digital imagery: beautifully colored, winsomely posed vintage postcards and photographs. **PhotoDisc's Volume 8: Backgrounds and Objects** is based on a neat idea: silhouetted objects on neutral backgrounds that can be selected and pasted into any image.



Best New Illustration Program

Adobe Illustrator 5.0

Given the abundance of new features, it's not surprising Adobe skipped a version number when it released **Adobe Illustrator 5.0**. This state-of-the-art program includes multicolor gradient fills, intuitive layering, and the ability to edit in preview mode. Like Photoshop, Illustrator 5.0 offers filtering technology for combining, cutting, and distorting any shape, enabling you to create complex designs quickly.

Finalists

Ray Dream's **addDepth 1.0** offers an outstanding combination of ease of use and functionality for doing three-dimensional vector-oriented artwork — all in an inexpensive package. Deneba's **Canvas 3.5**, the Swiss-army knife of drawing packages, offers unique new type-handling tools to extend its already impressive repertoire.



Hardware Product of the Year

EtherWave

These days Ethernet has become a necessity rather than a luxury. As more and more data gets pushed across networks, LocalTalk just can't cut it anymore. That's why Apple has put Ethernet on most of its motherboards, and that's why easy connection to Ethernet is in great demand. But why can't setting up an Ethernet network be as easy as stringing a bunch of Macs together with phone wire and PhoneNET connectors? Now it is: Farallon Computing's EtherWave brings the simplicity of PhoneNET's plug-and-play networking to Ethernet.

EtherWave lets you daisy-chain as many as eight Ethernet devices, using standard 10BASE-T wiring — you can even connect an EtherWave daisy chain to an existing 10BASE-T network without mishap. Plug-and-play twisted-pair Ethernet and compliance with the 10BASE-T standard were oxymorons until now, but EtherWave changes that. EtherWave's ease of setup is perfect for small, independent networks; small workgroups connecting to an existing larger net; or impromptu stand-alone meeting-room networks.

The EtherWave product line has something for everyone: NuBus cards for the Mac; ISA cards for PCs; and adapters for Apple's AAUI Ethernet port, traditional AUI ports, and LocalTalk printers, as well as a high-speed non-SCSI adapter for PowerBooks that, according to Farallon, consistently outperforms SCSI Ethernet adapters. This broad support for all types of Ethernet-able devices makes EtherWave attractive for any 10BASE-T network.

The price of Ethernet is constantly falling, and the amount of data that needs to be transported over networks is constantly growing — just look at QuickTime files and large color images — so an easy-to-install high-speed network is a must. EtherWave delivers.



Best New Typographic Product

Fontographer 4.0

Long the preferred program of professional type designers, version 4.0 of Altsys' *Fontographer* boasts new features that make it simple even for hobbyists to create custom fonts. New drawing tools make it easier than ever to sketch your own design. The Clean Up Paths feature removes extraneous points. And *Fontographer* 4.0 also takes care of the picky details, such as applying kerning and metrics to your creation.

Finalists

Monotype's *FontMixer* 1.0 lets you create custom fonts containing 400+ characters from different typefaces. You can also use it to re-encode fonts and reconfigure your keyboard. Adobe Systems' *SuperATM* 1.0 goes a long way toward solving the dilemma of missing fonts by creating substitutes with similar weights and styles.



Best New Imaging Program

Painter 2.0 and X2

Fractal Design's *Painter* 2.0 and X2 provide a host of new special-purpose art tools, such as marbling and lighting effects that enhance its rich natural-media metaphor, and X2's multiple floating-selection feature that lets you edit selections at any time during the design process. This package gives you the flexibility to create anything you can imagine at a price any artist can afford.

Finalists

artWORKS 1.0, Deneba's upgrade from *UltraPaint*, offers the drawing features of *Canvas*, enhanced painting tools, *Photoshop* plug-in compatibility, and more. An upgrade to an already great product, Adobe *Photoshop* 2.5.1 sports an enhanced interface and added precision features that give more photo-retouching power to novices and experts alike.



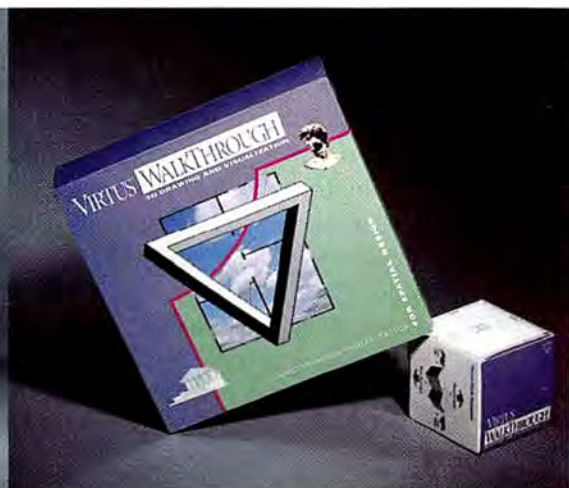
Best New 3-D Program

form•Z 2.3

The modeler of choice for industrial designers and animators, **form•Z 2.3**, from *auto•des•sys*, offers unlimited potential to anyone who needs to do three-dimensional design. It includes such features as Boolean operations, trimmed surfaces, and automatic rounding. With its robust import/export facilities and improved type handling, **form•Z** can tackle any job, of any size, with ease.

Finalists

Macromedia's **MacroModel 1.5** has new distortion tools for bending and twisting three-dimensional forms and new tutorial materials for beginners. **Strata's StudioPro 1.0** offers the enhanced modeling tools and powerful animation capabilities of expensive workstation packages.



Best New Music/Sound Product

DECK II 2.02

Sound is the oft neglected element in the multimedia mix, but with **DECK II 2.02**, from OSC Media Products, Mac audio gets its due. This program turns AV Macs (or any Macs equipped with 16-bit DSP sound cards) into four-track digital-recording and -editing studios. You can combine and mix live input, prerecorded audio, and MIDI tracks into a CD-quality recording — without sacrificing your source material. **DECK II** also synchronizes audio to video with great accuracy.

Finalists

With Great Wave Software's **ConcertWare Pro 1.0**, you hardly need the manual to create and edit sheet music. E-MU Systems' **Sound Engine** music module boasts great software and key features to make it the best general MIDI playback device that debuted this year.

Best New Computer-Aided Visualization Program

WalkThrough Pro 1.0

In **WalkThrough Pro 1.0**, *Virtus* adds enhanced texture-mapping facilities to offer more realism than earlier versions of the program. Flat color rendering has been transformed into vibrant worlds filled with wallpaper; carpeting; and even QuickTime movies, which offers the potential of motion pictures within motion pictures. Anyone doing spatial design — from architects to set designers — will find **WalkThrough Pro** indispensable.

Finalists

Artifice's Design Workshop 1.05 has a simple, intuitive interface that allows you to visualize spatial designs quickly and easily. *Alias' upFRONT 2.0* includes a plethora of tools and robust import/export facilities to take your sketches into the real world.

Breakthrough Technology of the Year

Newton Intelligence

In 1993 the era of personal information devices dawned. Apple released the Newton MessagePad, a product that has been compared to the original 128K Macintosh, because the promise of its underlying software architecture — in this case, Newton Intelligence — is more exciting than the product itself.

Newton Intelligence is a breakthrough technology for several reasons. The first is the advance it represents in handwriting recognition. Public figures have poked fun at Newton's handwriting-recognition software, but nevertheless, Newton Intelligence is the first commercial software system that can recognize cursive as well as block-printed letters.

Newton engineers also took a bold new approach to data storage and access. Unlike desktop computer systems, Newton Intelligence has no file system. The data stored within a Newton device is kept in free-form databases. The data created by any of the Newton's built-in applications is accessible — and

extensible — by third-party Newton applications, without the need for translation software.

The Newton's Intelligent Assistance, one of the four technologies that make up Newton Intelligence, is another striking innovation. The Newton can respond to certain keywords and symbols to perform automatic actions, such as automatically filling out a digital travel-expense slip when prompted.

Newton Intelligence also incorporates an extensive communications architecture. Software for printing, sending faxes, connecting to Mac and Windows desktop computers, sending and receiving electronic mail, and receiving pager messages is built in. Although many of these capabilities require additional hardware, the ability to manage a variety of communication tasks is a fundamental part of the Newton's core software.

Despite a rocky takeoff, we expect Newton Intelligence to take wing and make a significant mark in both computing and personal electronics in the coming years.



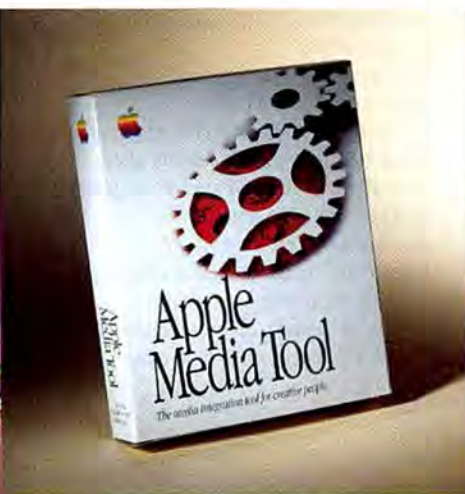
Best New Desktop-Video Product

Avid Media Suite Pro 2.0

Avid Media Suite Pro 2.0 is a watershed product in the evolution of digital, nonlinear Mac editing systems. A combo of editing software and NuBus cards, it lets you digitize full-motion video and CD-quality audio into your Mac, edit it, and export it to videotape. Given Avid's experience in producing desktop-editing systems for pros, it's not surprising that the Media Suite Pro's editing software is solid and well thought out.

Finalists

In addition to its excellent digitizing of full-motion video and four-track audio, Data Translation Media 100 1.0 boasts powerful software that accepts Adobe Premiere plug-ins. If you want to incorporate video into desktop-presentation or CD-ROM projects, RasterOps MoviePak Presenter is a great value.



Best New Multimedia Software

Apple Media Kit 1.0

The Apple Media Kit 1.0 is the answer for those who want to produce multimedia content but can't face having to master one of the other authoring applications. The Media Kit comprises the Apple Media Tool, a powerful yet accessible authoring application, and the Programming Environment, a high-level tool for adding controls and complex effects to projects.

Finalists

The tool of choice for QuickTime-video producers, Adobe Premiere 3.0 speeds up the rendering process and offers better cataloging features than ever before. Now freed from the constraints of HyperCard, VideoShop 2.0, Avid Technology's QuickTime video-editing application, sports many interface enhancements and is quicker in rendering transitions.



Best New Special-Effects Program

After Effects 1.1

Products that approximate Hollywood-style image warps and morphs are popular on the Mac, but professional-quality desktop effects weren't available until After Effects 1.1, from CoSA. With unrivaled precision in determining how and when image effects are applied, it's the only Mac product that lets you layer an infinite number of still and moving images into a single composite.

Finalists

Meta Flo' 1.0, from The Valis Group, lets QuickTime enthusiasts and desktop publishers distort multilayered images quickly for dramatic or humorous effect. VideoFusion 1.5 offers an intuitive interface, high speed, and an impressive array of filters and effects, but its standout ability is simplifying tricky morphs between moving images.



Best New Network Software

Retrospect Remote 2.0

Dantz Development's *Retrospect Remote 2.0* further advances the state of the art in network backup. Its vastly improved user interface takes much of the pain out of the complex task of backing up multiple Macs on a network, and its support for a wide variety of backup devices gives you a great deal of flexibility in choosing the backup medium that's best for you.

Finalists

ACI US' *4D Server 1.0.5* provides full-featured Mac-based server software for real client/server database applications. Between the server software's speed and 4D's front-end design capabilities, this new server software truly makes the Mac a viable database platform. Farallon's *Timbuktu 5.0* adds support for fast and simple connection setup as well as cross-platform interoperability with *Timbuktu* for Windows.

Best New Development Tool

Resorcerer 1.2.4

Resorcerer 1.2.4, from Mathemæsthetics, is without doubt the premier resource-editing tool on the Mac today. *Resorcerer* can handle untold numbers of resource types with its custom editors, including a 68K disassembler. It also has a powerful template facility that allows you to edit complex resources such as those found in *Installer* scripts.

Finalists

Bare Bones Software's *BEdit 2.5* is a versatile text editor, useful for programmers and nonprogrammers alike. One of its strengths lies in its high level of integration with both the MPW and THINK C development environments. AD Instruments' *UpdateMaker 2.1* provides one of the best ways for developers as well as users to create updaters that update software (or documents) from older versions.

Best New Network-Management Product

GraceLAN Bundle

TechWorks' *GraceLAN Bundle* is a trio of applications — *Network Manager*, *Update Manager*, and *Server Manager* — that provides essential services for network administrators. *Network Manager 3.0* and *Update Manager 1.1.1* ease the job of maintaining software on the network by gathering configuration information and allowing installation of updates over the network. *Server Manager* enables proactive administration of AppleShare file servers from a remote location.

Finalists

EtherPEEK 2.0.3, from ag group, provides a slick interface to a software-protocol analyzer for administrators who need to get under the hoods of their networks. Neon Software's *LANsurveyor 1.0* smoothly combines logical network mapping with SNMP-based management tools.





Best New Science/Engineering Product **LabView 3.0**

A powerhouse in data acquisition, instrument control, and data analysis, National Instruments' **LabView 3.0** extends its graphical programming environment to Windows and UNIX and expands its functionality. LabView plug-in routines, called Virtual Instruments (VIs), can operate as stand-alone applications. Other new capabilities include 3-D color display of real-time data, the ability to create automated test suites, and measurement-based analysis VIs that model the behavior of traditional frequency-analysis instruments.

Finalists

HiQ 2.0, from National Instruments, solves applied math and engineering problems with a user-friendly interface and speed that beats all competitors. **Working Model 1.0**, from Knowledge Revolution, is a precision animation tool that graphically models two-dimensional mechanics.

Best New Communications Product **First Class 2.4**

First Class 2.4, SoftArc's bulletin-board, conference, and electronic-mail application, has put a graphic interface onto more than 400 Mac-based bulletin-board systems — and for good reason. It gives users a desktop and allows e-mail, public messages, and file transfers. Users can simultaneously view multiple windows and conduct multiple downloads. The system works over a modem or an AppleTalk LAN connection, making it a viable alternative office e-mail system.

Finalists

Aladdin Systems' SITcomm 1.0 combines a telecommunications program with a StuffIt engine, run-time versions of AppleScript and Frontier, and translators to make non-Mac files readable. **Synergy Software's VersaUtilities 1.1** includes an Internet e-mail and news-reading application with ftp-client and -directory services, as well as unique communications tools.

Best New Network Hardware **EtherWave**

They said it couldn't be done, but Farallon has made Ethernet as plug-and-play as LocalTalk. **EtherWave** is a daisy-chainable, 10BASE-T-compatible Ethernet system that connects as many as eight Macs, PCs, printers, or other devices to an existing or new network. You don't have to throw away your current Ethernet cards either — a single EtherWave transceiver can connect three devices containing AUI or AAUI ports.

Finalists

The RISC-Router 3000E, from Compatible Systems, is a high-speed, moderately priced router for AppleTalk, TCP/IP, DECnet, and IPX that offers many advanced features. An inexpensive switched hub that speeds LocalTalk networks, **Tribe Computer Works' TribeStar** contains an Ethernet port that gives each Mac full-bandwidth, high-speed access to shared devices.

Derek Van Alstyne Rising Star Award **Bruno Delean**

One of the most talked-about products of the past year is Live Picture, an image-editing application that lets users perform complex operations on large color images (100 megabytes or more) in close to real time. The program is based on a revolutionary technology called FITS (Functional Interpolating Transformation System). FITS is resolution-independent, as PostScript is for images. Changes made to images are stored as mathematical equations that are applied to the pixel data only at output time. It's a striking piece of invention.

The man behind FITS is Bruno Delean, a Frenchman who began developing FITS five years ago at Diadem, the French prepress company he cofounded (he left to start Sunline, later FITS Imaging). After watching a demonstration of a high-end Quantel Paintbox, Bruno reasoned that similar software could run on a Mac. More remarkably, he made it happen.

Bruno is something of an anachronism. Working at his grandmother's house in the Pyrenees, he writes code in pencil

on paper that he sends to his engineers for execution. According to Bruno, this methodology makes perfect sense. He visualizes the program working in its entirety before committing it to the computer. He says that programming on the computer makes one think about compiling, executing, and debugging the software when one's energies should rather be focused on its creation.

Bruno's desire to separate the creative and the technical is paralleled in FITS. By allowing real-time manipulation of large images, FITS frees artists from worrying about the technology and instead lets them concentrate on pure creation. Image editing is no longer a matter of pushing pixels around and waiting for the machine to catch up; instead, artists can apply effects and see the intended results immediately.

Many companies have been watching Bruno's invention with keen interest. As desktop publishing on the Mac nears the decade mark, it's clear that Bruno Delean will play a key role in shaping the next ten years.



Software Product of the Year **After Effects 1.1**

Digital-video technology is sweeping through Hollywood and corporate video-production facilities nationwide, promising leaps in productivity in both video and film editing as well as hot new special effects — at a fraction of the cost of existing systems. One product that delivers all these benefits is After Effects, from the Company of Science & Art (CoSA).

After Effects is a digital-video special-effects application designed for professional videographers. Whether it's compositing, morphing, warping, or any other special effect you're looking for, After Effects offers the most control of any product available today. It comes with its own set of plug-in effects, but the application also accepts your favorite third-party plug-ins, such as Kai's Power Tools, Xaos Tools' Paint Alchemy, or other Photoshop modules, which you can apply over time.

Because After Effects offers the power of a complex, professional special-effects suite, it can take some time to master — its interface is not for the fainthearted. That said, it's one of the few products capable of generating true broadcast-quality special effects on the Mac today.

Above all, for just about \$1,300, After Effects can replace hundreds of thousands of dollars' worth of older, analog special-effects equipment. As a result, a whole new group of Mac users has developed. Videographers who might otherwise be interested only in Silicon Graphics machines for producing computerized special effects now have a viable alternative and a fresh reason to consider the Mac. And as the power of high-end video systems becomes more accessible, After Effects could move into the mainstream as well. Perhaps that's why Aldus, the company that pioneered desktop publishing nearly a decade ago, purchased CoSA last year.

Every now and then, an application comes along that gives a group of professionals a reason for incorporating Macs into their business environments. This year, it's After Effects.



Best New Display Product

SuperMac PressView 21 Display System

The SuperMac PressView 21 Display System promises on-screen color that's more accurate than ever before. Designed for publishing applications, the 21-inch monitor includes powerful color-correction tools, such as the SuperMatch Display Calibrator Pro, to facilitate matching the color you see on-screen and the color you print, and ColorMatch software, to give you direct brightness and color control.

Finalists

The Apple AudioVision 14 Display integrates multimedia functions with a crisp display. This 14-inch Trinitron monitor comes with built-in stereo speakers, a microphone, and sound controls. The Radius IntelliColor Display/20 provides exceptionally easy-to-use monitor-adjustment software. Uniquely, it also leaves your serial and ADB ports free.





Best New Scanning Product **Nikon Coolscan**

If you need to produce high-quality scans of 35mm slides and negatives, the **Nikon Coolscan** should be at the top of your list. The Coolscan offers resolutions as high as 2,700 pixels per inch at a bit depth of 8 bits per color for less than \$2,000 — that's less than a dollar a dot. Available as a stand-alone unit, it's also compact enough to mount inside any Mac with room for a 5.25-inch half-height drive. Cool.

Finalists

For large, crisp images, you need the **PixelCraft Pro Imager 7650c**, a 1,200-dpi flatbed unit that scans color images in sizes as large as 11.7 x 17 inches. The best flatbed color scanner in its price range, the 24-bit **La Cie Silverscanner II** comes with excellent software.



Best New Monochrome Printer **Hewlett-Packard LaserJet 4ML**

The **Hewlett-Packard LaserJet 4ML** is an affordable 300-dpi laser printer that makes high-quality printing possible for more users. HP's proprietary Resolution Enhancement Technology and microfine toner achieve excellent print quality on text and line art, and the cost-reducing **EconoMode** cuts toner usage in half. This 4-page-per-minute unit performs on a par with more-expensive 8-ppm laser printers.

Finalists

The **Apple LaserWriter Pro 630** offers outstanding 600-dpi output, built-in EtherTalk and SCSI ports, and a quick 25-megahertz Motorola 68030 processor for demanding workgroup needs. For high-resolution printing on 11-x-17-inch paper, the 600-dpi **GCC SelectPress 600** comes through with a 40-megabyte internal hard drive and edge-to-edge printing.



Best New Accelerator Board **YARC Systems Turbo MacRageous**

Offering the power of five Quadras, **YARC Systems Turbo MacRageous** provides application-specific acceleration for key imaging and multimedia programs, including CoSA's After Effects, Specular International's BackBurner, and VideoFusion's VideoFusion. It also accelerates Pixar's Renderman, Hollywood's preferred special-effects renderer. For multimedia wizards, this is the application accelerator of choice.

Finalists

Combining a superfast 68040; 128K cache; and excellent compatibility, support, and trade-up policy, the **DayStar Turbo 040** is the best accelerator family for the Mac SE/30 and the Mac II family. The **Extreme Systems Impact RGB** packs a 32-megahertz 68030, an optional FPU, and 24-bit video onto a single card that fits inside your Mac LC.

Best New Color Printer **Tektronix Phaser 200i**

The **Tektronix Phaser 200i** marches at the forefront of a new breed of thermal-wax color printers that don't require expensive coated-paper stock. Tektronix's ColorCoat technology lets you print crisp color on both plain paper and transparencies. Featuring Adobe PostScript Level 2 and an AMD 29000 RISC processor, the 200i can print two color pages per minute without breaking a sweat. SCSI and EtherTalk are also included.

Finalists

The **Hewlett-Packard DeskJet 1200C/PS** heralds a new era in color business inkjet printers with Resolution Enhancement Technology, Adobe PostScript Level 2, and vivid plain-paper output. The **SuperMac ProofPositive** dye-sublimation printers offer Adobe's Configurable PostScript Interpreter Level 2, built-in color management, and photo-realistic output.

Best New Storage Product **APS SR 2000 Case**

In the fiercely competitive world of the humble desktop hard drive, nobody sweats the details more than APS. Elegant design, quality components, and rock-solid construction distinguish the compact **APS SR 2000 Case**. In addition, digital active-termination circuitry monitors each signal on the SCSI bus and adjusts it as necessary to maintain optimum signal levels, thus taming recalcitrant SCSI chains.

Finalists

The **Alphatronix Inspire III GG** is a 5.25-inch removable magneto-optical drive that features ultrasafe error detection and fast performance at a competitive price. The **FWB SCSI JackHammer** is a fast and wide SCSI 2-ready intelligent SCSI coprocessor that brings the benefits of Apple's new SCSI Manager 4.3 to Macs and third-party hard drives.



Best New Desktop Diversion

Opus 'n Bill Screen Saver 1.0

Delrina's wickedly funny *Opus 'n Bill Screen Saver 1.0* collection features *Opus the Penguin*, of "Bloom County," and two famous Bills: *Bill the Cat* and *Bill Clinton* (we're sad that several *Bill Gates* parodies were removed from an earlier version). See *Bill the Cat* cavort amorously with *Socks*. Watch *Opus* moon the President.

Finalists

Dubl-Click Software's *ClickChange 2.0* is the ultimate desktop-customization control panel. It lets you add colors, patterns, animated cursors and icons, and a selection of wacky sounds. *UnderWare 1.0*, from Bit Jugglers, is a true desktop diversion — it provides entertainment on your desktop as you work. Icons dance, your Trash melts, and much more.

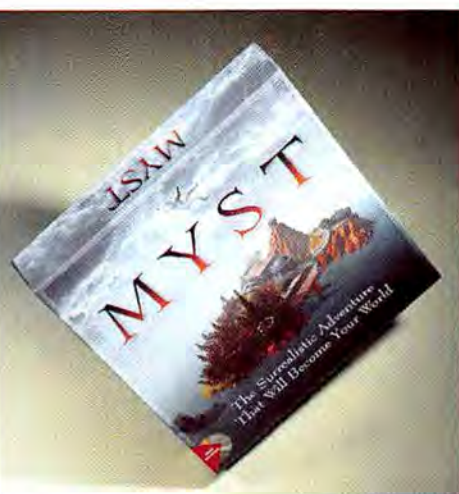
Best New Children's Program

Thinkin' Things 1.0

Every child is born to explore. Edmark's *Thinkin' Things 1.0* cultivates a child's instinctive imagination by seamlessly blending entertainment, education, and encouragement. *Thinkin' Things* provides a rich cast of fanciful characters that introduces younger children to pattern matching and ear training. Older kids are challenged to create their own abstract animations. Its wit and sophistication are the perfect antidote to creeping Barneyism.

Finalists

The San Diego Zoo Presents ... *The Animals! 1.0*, from The Software Toolworks, is stuffed with enough photos, movies, and animal lore to satisfy any teenager's ecological curiosity. *Putt-Putt Joins the Parade*, from Humongous Entertainment, has no fancy graphics and no state-of-the-art animations, but this sweet, gently challenging CD-ROM adventure will warm the hearts of preschooler and parent alike.



Best New Game

Myst 1.0

Brøderbund takes computer gaming to new heights with *Myst 1.0*. Soon to be a legend in the realm of CD-ROMs, *Myst* mesmerizes the gamer with its beautiful 3-D graphics and ominous sound track. And if that doesn't grab you, then the nonviolent, nonlinear adventure will, as you solve puzzles; find clues; and learn about Atrus, the mystery man whose story introduces you to the world of *Myst*.

Finalists

AMTEX's *Eight Ball Deluxe 1.0* brings the pinball classic to the Macintosh, complete with body English, pinball motion, and even the ability to tilt the machine. In Drew Picture's smooth-running CD-ROM *Iron Helix 1.0*, you have to prevent an intergalactic nightmare.

Eddy Watch: 1994 Contenders

As soon as we rip open the envelopes and announce this year's Eddy Award winners, it's time to begin researching next year's awards. Although it's much too early to project winners, here's a peek at some early contenders for the 1994 Eddy Awards:

Air Communicator (Air Communication): Combining a modem with a cellular phone, this device may turn your PowerBook into a complete personal communicator.

Aldus FreeHand 4.0 (Aldus): The new version offers the most-powerful type-handling features in any illustration program as well as a host of new tools.

ALLright (MSA): This neat little bundle of utilities combines all of your must-have tools behind one slick interface.

Apple PowerShare (Apple Computer): Apple's server software should bring to fruition the power of the Apple Open Collaboration Environment.

Apple PhotoFlash (AppleSoft): A new graphics product from Apple's software group, Apple PhotoFlash provides image editing for the rest of us.

Citizen America Notebook Printer II (Citizen America): This portable color-inkjet printer tips the scales at a mere 2.6 pounds yet offers 360-dpi resolution.

CorelDRAW! for the Mac (Corel): Flavors of this PC standout, which is finally making its way to the Mac, will focus on business users first and then target graphic users with full support for Apple's QuickDraw GX.

Electric Image 2.0 (Electronic Arts): This expensive but indispensable 3-D animation tool includes powerful new plug-in capabilities for creating particle effects and explosions.

Flight Simulator Control System (ThrustMasters): Bring the feeling of flying to your desktop with this joystick/throttle/rudder combo.

FontChameleon (Ares Software): This interesting tool lets you make millions of fonts with a multitude of styles from one little database.

FoxPro 2.5 for Macintosh (Microsoft): With robust cross-platform capabilities and a speedy search language, it may help legitimize the Mac as a relational-database platform.

Horizon 24 (RasterOps): Loaded with RAM and DSPs, this new 24-bit graphics card accelerates most imaging functions.

Macbeth (The Voyager Company): In this CD-ROM, designed by a college professor, Shakespeare goes interactive.

Managing Your Money 6.0 (Teleware): This updated personal-finance program may give Quicken a run for the, er, money with extensive investment-tracking capabilities.

The Microsoft Office (Microsoft): With new versions of Word, Excel, and PowerPoint all due this year, the Office suite may become more than a marketing ploy by using OLE to integrate functionality. **Word 6.0**, **Excel 5.0**, and **PowerPoint 4.0** are no slouches as stand-alone applications either.

M.Y.O.B. 4.0 (BestWare): This accounting package for small businesses adds integrated payroll, beefed-up on-line help, and links to time-slip and time-billing software.

NEC MultiSpin 3Xe/3Xp (NEC): These triple-spin CD-ROM drives (one for the desktop, one for PowerBooks) may be this year's bottleneck-busters.

PixelPaint Pro 3 (Pixel Resources): Packed with sophisticated features such as floating selections, this image-editing application gets new life under its original developer.

PowerPort/Mercury and TelePort/Mercury (Global Village Communication): With connections as fast as 19,200 bps, these modems for desktop and notebook Macs make quick communications.

The 7th Guest (Virgin Games): In this two-CD-ROM interactive game, you play a reporter trying to find out the identity of the mysterious seventh guest.

Strata Virtual 3D (Strata): This utility offers very-high-quality real-time walkthrough of 3-D spaces, with performance rivaling workstations.

20th Century Art (Eden Interactive): An elegant interface and seamless integration of QuickTime movies make this CD-ROM stand out.

Tektronix Phaser 300i (Tektronix): The second generation of solid-wax inkjet devices brings faster printing, finer screens, and better color.

Timbuktu Pro 1.0 (Farallon): The latest version of the Timbuktu file-transfer program adds new security features and support for TCP/IP.

1993 Product Directory

Abacus \$149 Key Tronic Corp. 800-262-6006 509-928-8000	Apple Media Kit 1.0 \$3,995 Apple Computer, Inc. 800-776-2333 408-996-1010
addDepth 1.0 \$179 Ray Dream, Inc. 415-960-0765	APS SR 2000 Case \$279 to \$2,199 APS Technologies 800-235-2750 816-483-1600
Adobe Acrobat 1.0 Exchange, \$195 Reader, \$50 Personal Distiller, \$695 Network Distiller, \$2,495 Starter Kit, \$1,395 Adobe Systems, Inc. 800-833-6687 415-961-4400	artWORKS 1.0 \$149 Deneba Software 305-596-5644
Adobe Illustrator 5.0 Floppy, \$595 CD Deluxe, \$695 Adobe Systems, Inc. 800-833-6687 415-961-4400	Astound 1.0 \$399 Gold Disk, Inc. 416-602-0395
Adobe Photoshop 2.5.1 \$895 Adobe Systems, Inc. 800-833-6687 415-961-4400	Avid Media Suite Pro 2.0 \$9,995 Avid Technology, Inc. 800-949-2843 508-640-6789
Adobe Premiere 3.0 Floppy, \$695 CD Deluxe, \$795 Adobe Systems, Inc. 800-833-6687 415-961-4400	BEdit 2.5 \$99 Bare Bones Software 508-651-3561
After Effects 1.1 \$1,295 Company of Science & Art (CoSA) 401-831-2672	Best Books 1.0 \$99 BestWare, Inc. 800-322-6962 201-586-2200
Aldus Fetch 1.2 \$295 Aldus Corp. 800-333-2538 206-628-2320	Canvas 3.5 \$399 Deneba Software 305-596-5644
Aldus PageMaker 5.0 \$895 Aldus Corp. 800-333-2538 206-628-2320	CheckWriter Pro 6 \$79 Aatrix Software, Inc. 800-426-0854 701-746-6801
Alphatronic Inspire III GG \$4,895 Alphatronic 919-544-0001	Cirrus 2.0 \$395 Canto Software 800-332-2686 415-431-6871
America Remembered 1.0 \$199 Boraventures Publishing 212-219-9111	ClickChange 2.0 \$89.95 Dubl-Click Software, Inc. 800-266-9525 818-888-2068
Apple AudioVision 14 Display \$719 Apple Computer, Inc. 800-776-2333 408-996-1010	ConcertWare Pro 1.0 \$339.95 Great Wave Software 408-438-1990
Apple LaserWriter Pro 630 \$2,139 Apple Computer, Inc. 800-776-2333 408-996-1010	Conflict Catcher II \$79.95 Casady & Greene 800-359-4920 408-484-9228
	Data Desk 4.1 \$595 Data Description, Inc. 607-257-1000
	Data Translation Media 100 1.0 \$11,995 Data Translation 508-460-1600

1993 Product Directory, continued

- DayMaker Organizer 3.0**
\$149.95
Pastel Development
800-727-6732
212-941-7500
- DayStar Turbo 040**
\$699 to \$1,499
DayStar Digital, Inc.
800-962-2077
404-967-2077
- DECK II 2.02**
\$299
OSC Media Products
415-252-0460
- DeltaGraph Pro 3**
\$195
DeltaPoint, Inc.
800-446-6955
408-648-4000
- Design Workshop 1.05**
\$895
Artifice, Inc.
503-345-7421
- Dynamics**
Price varies with configuration.
Great Plains Software
800-456-0025
701-281-0550
- E-Machines Presenter Dock**
\$499
E-Machines (SuperMac)
800-344-7274
408-541-6100
- Eight Ball Deluxe 1.0**
\$49.95
AMTEX Software Corp.
613-967-7900
- EtherPEEK 2.0.3**
\$795
ag group
800-466-2447
510-937-7900
- EtherWave**
\$129 to \$419
Farallon Computing, Inc.
510-814-5000
- Extreme Systems Impact RGB**
RGB12, \$599
RGB16, \$699
RGB21, \$999
Extreme Systems
800-995-2334
206-575-2334
- First Class 2.4**
Server, \$95
For 5 users, \$395
For 50 telecom users, \$395
SoftArc, Inc.
416-299-4723
- Fontek DesignFonts**
\$349 for all six
Letraset USA, Inc.
800-343-8973
201-845-6100
- FontMixer 1.0**
\$79
Monotype
Typography, Inc.
312-855-1440
- Fontographer 4.0**
\$495
Altsys Corp.
214-680-2060
- formEZ 2.3**
\$1,495
auto-des-sys, Inc.
614-488-8838
- 40 Server 1.0.5**
\$395 per workstation
ACI US, Inc.
408-252-4444
- 4th Dimension 3.0**
\$895
ACI US, Inc.
408-252-4444
- FrameMaker 4.0**
\$895
Frame Technology Corp.
800-843-7263
408-433-3311
- FWD SCSI Jackhammer**
\$799
FWB, Inc.
415-474-8055
- GCC SelectPress 600**
\$4,499
GCC Technologies, Inc.
800-422-7777
617-275-5800
- GraceLAN Bundle**
\$1,695
TechWorks
800-926-3148
512-794-8533
- A Hard Day's Night**
\$39.95
The Voyager Company
800-446-2001
212-431-5199
- Hewlett-Packard Deskjet 1200C/PS**
\$2,399
Hewlett-Packard (Direct Marketing)
800-752-0900 (U.S.)
800-387-3867 (Canada)
- Hewlett-Packard DeskWriter 310**
\$379
With sheet feeder, \$455
Hewlett-Packard (Direct Marketing)
800-752-0900 (U.S.)
800-387-3867 (Canada)
- Hewlett-Packard LaserJet 4ML**
\$1,279
Hewlett-Packard (Direct Marketing)
800-752-0900 (U.S.)
800-387-3867 (Canada)
- HIQ 2.0**
\$695
National Instruments
800-433-3488
512-794-0100
- How Computers Work**
\$79.99
Time-Warner Interactive Group
800-593-6334
818-955-9999
- Iron Helix 1.0**
\$99
Drew Pictures, Inc.
415-247-7600
- JABRA EarPHONE**
Streamline AV
\$149.95
JABRA Corp.
619-622-0764
- La Cie Silvercannon II**
\$1,599
La Cie Ltd.
800-999-0143
503-520-9000
- LabView 3.0**
\$1,995
National Instruments
800-433-3488
512-794-0100
- LANsurveyor 1.0**
Five-zone version, \$395
For unlimited zones, \$695
Neon Software
510-283-9771
- MacroModel 1.5**
\$1,495
Macromedia
800-945-4061
415-252-2000
- MacTools 3.0**
\$149.95
Central Point Software
800-445-4208
503-690-8088
- Meeting Maker XP 1.0**
\$57 to \$79 per user
ON Technology Corp.
800-548-8871
617-374-1400
- Mata Flo' 1.0**
\$595
The Valis Group
800-825-4704
415-435-5404
- Myst 1.0**
\$55
Brøderbund Software, Inc.
800-521-6263
415-382-4400
- Newton**
\$700 to \$900
Apple Computer, Inc.
800-776-2333
408-996-1010
- Nikon Coolscan**
External, \$2,495
Internal, \$2,195
Nikon Electronic Imaging
800-526-4566
516-547-4355
- New Contact 1.0**
\$99
With Now Up-to-Date 2.1,
\$179
Now Software, Inc.
800-237-3611
503-274-2800
- Omnis 7, (version 2.1)**
\$3,750
Blyth Software, Inc.
800-346-6647
415-571-0222
- Opus 'n Bill Screen Saver 1.0**
\$44.95
Delrina Corp.
800-268-6082
408-363-2345
- Painter 2.0 and X2**
Painter, \$399
X2, \$149
Fractal Design Corp.
408-688-8800
408-688-5300
- Passport Producer Pro 1.0**
\$1,495
Passport Designs, Inc.
415-726-0280
- PixelCraft Pro Imager 7650c**
\$11,495
PixelCraft
800-933-0330
510-562-2480
- PowerPlate Series**
Mini3, \$169.95
3x, \$239.95
5x, \$299.95
Technoggin, Inc.
513-321-1777
- Putt-Putt Joins the Parade**
\$34.95
Humongous
Entertainment
206-485-1212
- QuarkXPress 3.2**
\$895
Quark, Inc.
800-788-7835
303-894-8888
- Quicken 4**
\$69.95
Intuit, Inc.
800-624-8742
415-322-0573
- QoldKeys 3.0**
\$169
CE Software
800-523-7638
515-221-1801
- Radius IntelliColor Display/20**
\$3,199
Radius, Inc.
800-227-2795
408-434-1010
- Random House Unabridged Dictionary**
CD-ROM, \$79
CD-ROM with dictionary,
\$159
Random House Reference
and Electronic Publishing
800-733-3000
410-848-1900
- RasterOps MoviePak Presenter**
\$1,799
RasterOps
800-729-2656
408-562-4200
- Resorcerer 1.2.4**
\$256
Mathemasthetics
617-738-8803
- Retrospect Remote 2.0**
\$449
Dantz Development Corp.
510-253-3000
- RISC+Router 3000E**
\$3,495
Compatible Systems
800-356-0283
303-444-9532
- The San Diego Zoo Presents ... The Animalist 1.0**
\$99.95
The Software Toolworks
800-234-3088
415-883-3000
- SITComm 1.0**
\$120
Aladdin Systems, Inc.
408-761-6200
- Sound Engine**
\$595
E-MU Systems, Inc.
408-438-1921
- StudioPro 1.0**
\$1,495
Strata, Inc.
800-678-7282
801-628-5218
- SuperATM 1.0**
\$149
Adobe Systems, Inc.
800-833-6687
415-961-4400
- SuperMac PressView 21 Display System**
\$3,999
SuperMac Technology
800-334-3005
408-541-6100
- SuperMac ProciPositive Full-Page Printing System,**
\$10,499
Two-Page Printing
System, \$19,999
SuperMac Technology
800-334-3005
408-541-6100
- Tektronix Phaser 2001**
\$5,995
Tektronix, Inc.
800-835-6100
503-627-7111
- Thakia's Thangs 1.0**
\$59.95
Edmark Corp.
800-426-0856
206-556-8400
- Timbuktu 5.0**
\$199
Twin pack, \$299
Farallon Computing, Inc.
510-814-5000
- TribeStar**
\$1,795
Tribe Computer Works
800-778-7423
510-814-3900
- UnderWare 1.0**
\$59.95
Bit Jugglers
415-968-3908
- UpdateMaker 2.1**
\$220
AD Instruments
415-964-2878
- upFRONT 2.0**
\$299
Alias Research, Inc.
800-447-2542
416-362-9181
- VersaUtilities 1.1**
\$145
Synergy Software
800-876-8376
215-779-0522
- Videofusion 1.5**
\$649
VideoFusion Ltd.
800-638-5253
419-891-1090
- Videoshop 2.0**
\$499
Avid Technology, Inc.
800-949-2843
508-640-6789
- Volume 8: Backgrounds and Objects**
\$395
PhotoDisc
800-528-3472
206-441-9355
- Wacom ArtZ Tablet**
\$449
Wacom Technology Corp.
800-922-6613
206-750-8882
- WalkThrough Pro 1.0**
\$395
Virtus Corp.
800-847-8871
919-467-9700
- WealthBuilder 3.0**
\$109.95
Reality Technologies, Inc.
800-346-2024
215-277-7600
- Working Model 1.0**
\$995
Knowledge Revolution
800-766-6615
415-553-8153
- YARC Systems Turbo MacRageous**
\$4,895
YARC Systems
805-499-9444

HOW TO BUY AN AFFORDABLE HARD DRIVE

The Hard Truth

IF YOU'RE IN THE MARKET for an affordable hard drive, then you've probably noticed that drives in the 170-to-240-megabyte-capacity range are the best buys, dollar for dollar. And dealers, vendors, friends, and **MacUser Labs** coworkers have probably given you advice on how to pick a drive. Some people advocate buying the least expensive drive you can find, because "they're all the same anyway," whereas others advise checking out every niggling detail, including arcane statistics such as how large the read/write cache is.

Well, the best approach lies somewhere in between. Drives may often look the same and ads may make them all sound the same, but some details really are worth investigating before you buy a drive. This doesn't mean you should go overboard, trying to ferret out every tiny variation in drive technology — that's our job.

By Cheryl England

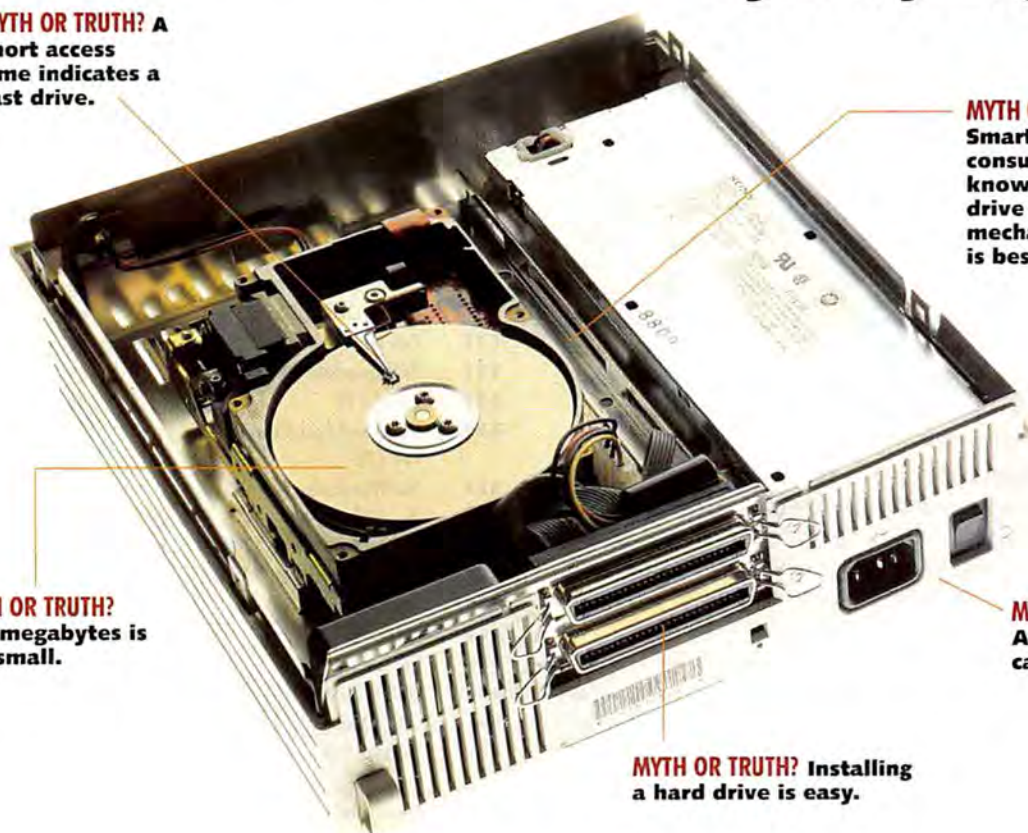
MYTH OR TRUTH? A short access time indicates a fast drive.

MYTH OR TRUTH? Smart consumers know which drive mechanism is best.

MYTH OR TRUTH? 200 megabytes is too small.

MYTH OR TRUTH? A case is a case.

MYTH OR TRUTH? Installing a hard drive is easy.



For this review, we tested 38 drives (plus one internal Apple Macintosh drive) from 23 vendors. Overall, each drive performed acceptably. Still, we picked some winners based on real differences, not just statistical hairsplitting. To show you how we arrived at our conclusions and to help you purchase your next drive, we'll walk you through eight common myths that make selecting a drive much harder than it should be. Be forewarned, however, that these guidelines apply only to drives

with capacities of less than 500 megabytes — you'll need to consider different factors for higher-capacity drives.

MYTH 1: 200 megabytes is too small

It's not. If you're currently using a drive that stores 100 megabytes of data or less and you are only now nudging up against its capacity limits, then a drive that stores 170 to 240 megabytes of data should be sufficient for a while — as long as you aren't planning to take up

any storage-intensive hobbies such as video or sound editing, professional desktop publishing, or 3-D rendering.

For many users, drives in this smaller-capacity range may be the only affordable choices. A 240-megabyte drive averages around \$300 to \$400, whereas a low-cost 500-megabyte drive can cost twice as much. A 1-gigabyte drive goes for anywhere from \$900 to \$1,600 or more.

Likewise, you pay a premium for removable storage. An 88-megabyte SyQuest

The Bottom Line

IF YOU'RE LOOKING FOR A BARGAIN, then go for a 240-megabyte drive. Lower-capacity drives, although less expensive overall, end up costing you more per megabyte. If you want something a little different in a drive — for instance, portability or a modular case design — be prepared to pay a bit more. Here are our recommendations, based on several factors, including price/performance, customer service, ease of installation, noise level, and case design and construction.



You can't buy a better hard drive than the APS Q 240 (bottom) or the La Cie QDrive 240 (middle). If totability is important to you, the Optima MiniPak 240 (top) is your best bet.

⊕ = OUTSTANDING
● = ACCEPTABLE
⊖ = POOR

- | | PRICE/
PERFORMANCE | CUSTOMER
SERVICE | QUIET
OPERATION | CASE
QUALITY |
|---|-----------------------|---------------------|--------------------|-----------------|
| ★★★★ APS Q 240 | ⊕ | ⊕ | ● | ⊕ |
| An overall good buy , the APS Q 240 (\$329 direct) has a low price, solid performance, and excellent customer support, although the drive's noise can be distracting. The standard case is solidly constructed; you can purchase an even better — and quieter — one for \$20. | | | | |
| ★★★★ La Cie QDrive 240 | ⊕ | ⊕ | ⊕ | ⊕ |
| Earning outstanding ratings in all categories , the La Cie QDrive 240 (\$559 list, \$300 street) is also a good buy. Price is low, customer support is excellent, and manuals and software are top-notch. Unlike Tsunami drives, which La Cie sells direct, QDrives are available only from dealers. | | | | |
| ★★★★ Optima MiniPak 240 | ● | ● | ● | ⊕ |
| The top totable drive is the Optima MiniPak 240 (\$549 list, \$545 street). Lightweight and well constructed, the drive includes adjustable feet so you can orient it vertically or horizontally, and it comes with excellent manuals. You pay more for the clever case, though. | | | | |

	PRICE/ PERFORMANCE	CUSTOMER SERVICE	QUIET OPERATION	CASE QUALITY
★★★★ Airbourne Conner 170	●	●	●	●
★★★★ Airbourne Quantum 170	●	●	●	●
★★★★ Airbourne Quantum 240	●	●	●	●
★★★★ APS MX 245	●	⊕	●	⊕
★★★★ APS Q 170 ELS	●	⊕	●	⊕
★★★★ Focus 210MB	●	⊕	●	⊕
★★★★ La Cie QDrive 170	●	⊕	⊕	⊕
★★★★ La Cie Tsunami 170	⊕	⊕	●	●
★★★★ La Cie Tsunami 240	⊕	⊕	⊖	●
★★★★ Liberty 50 Series 170	●	●	*	●
★★★★ Liberty 50 Series 240	●	●	●	●
★★★★ Loviell 240	●	⊕	●	●
★★★★ MacDirect Conner 170	●	⊕	●	⊕
★★★★ MacProducts Magic 240	●	●	●	●
★★★★ MegaDrive Mercury 240	●	●	*	⊕
★★★★ Microtech Polaris 230	●	⊕	●	●
★★★★ Spin Q240	⊕	●	●	●
★★★★ TMS ProDrive LPS				
240 ExtMac	⊕	●	⊕	●
★★★★ ClubMac Quantum 240	⊕	⊖	●	●
★★★★ FWB PocketHammer 170	●	⊕	●	⊕
★★★★ FWB PocketHammer 240	●	⊕	●	⊕
★★★★ HTF RealTech LPS240	●	●	●	⊖
★★★★ IMS Quantum ELS 170	●	⊕	●	●
★★★★ IMS Quantum 240 LPS	⊕	⊕	●	●
★★★★ Loviell 170	⊖	⊕	●	●
★★★★ MacWarehouse PowerUser Pro 170	●	●	●	●
★★★★ MacWarehouse PowerUser Pro 240	●	●	●	●
★★★★ Mirror SmartStack 170MB	●	⊖	●	⊕
★★★★ Mirror SmartStack 240MB	●	⊖	●	⊕
★★★★ PLI 170 Turbo	⊖	⊕	⊕	⊕
★★★★ PLI 240 Turbo	⊖	⊕	⊕	⊕
★★★★ Procom MD240	⊖	●	●	●
★★★★ CMS Platinum 170	⊖	⊖	⊖	●
★★★★ CMS Platinum II 240	⊖	⊖	⊖	⊕
★★★★ Dynatek HDA 240	⊖	⊖	⊕	⊖

*Drive was not received in time for noise-level testing.
Listing is alphabetical within groups of equal mouse ratings.

drive costs about \$500; additional cartridges cost \$100 or so each. (Optical drives cost twice as much, although a 3.5-inch cartridge costs half as much as a SyQuest cartridge.)

If you really need a removable-storage option — say you work in a highly confidential area and you need to physically lock your data up each night — you should check out MegaDrive's Mercury system in addition to traditional removable-storage technologies such as SyQuest, Bernoulli, or optical. With the MegaDrive Mercury, you get a base unit (a docking bay) that contains the components you need in order to connect the drive to a Mac. You insert a lightweight, portable unit that contains a hard disk into the docking bay. The hard-disk portion comes with a handle so you can push it into and pull it out of the base easily. The base includes a lock so that no one other than you can remove the drive. You can get hard-drive modules in capacities from 130 megabytes to 1 gigabyte. Be forewarned, however, that you'll pay a premium for this drive. The docking bay alone costs \$419, and a 240-megabyte drive module costs \$511. For that kind of money, you can buy a gigabyte of traditional hard-drive storage.

MYTH 2: A case is a case

If you grabbed a random sample of hard drives from a dealer's shelf, piled them up, and took the vendor's labels off, you might have a difficult time telling whose drive was whose. In fact, five vendors — Airbourne, CMS, IMS, Loviël, and HTF (Hardware That Fits) — sent us drives that, labels aside, looked exactly alike. These vendors weren't stealing each other's designs — they'd simply bought their cases from the same supplier.

So why isn't a case just a case? First, there are the obvious differences. Most cases are thin rectangular boxes that sit horizontally on your desk or under a compact Mac. You can orient these drives vertically to save desk space, but only the CMS Platinum II 240, the La Cie QDrives, and the Procom MD240 come

Hard-Drive Imponderables

MOST PEOPLE DON'T CONSIDER HARD DRIVES FUN, and for good reason — they aren't. But if you look, you can find a few absurdities that might make you laugh — or cry.



Quick — do you know which icon means on and which means off? Don't worry if you don't — a quick, unscientific poll of several *MacUser* editors

showed that more than half don't know either. Turns out the icons are international symbols based on binary math. But you probably knew that.



OK, here's another one for you — what do the green and red lights on a hard drive mean? *MacUser* editors fared worse on this one — only a quarter of those polled got the answer right. Green means the drive is getting power; red shows activity. (Two of our editors are color-blind.)



Know what these are? DIP switches. Dinosaurs from another age. Only La Cie's Tsunami drives have them for setting SCSI-ID numbers. Why are these things a joke? Because to use them, you need to know the secret "code" — for instance, to set the SCSI ID to 2, you need to flip the switches to off, on, off, on. How do you know the code? And

how do you know which position is on and which is off? You look in the manual, which you lost a long time ago.



For a good time, call 816-483-6100 during working hours. You'll reach APS Technologies' voice-mail and can hear such humorous jibes as "If you don't have a touch-tone phone, if you don't have a * button, or if you don't have a clue, stay on the line." Trust us — it's funnier than it sounds.

For a not-so-good time, try calling CMS for tech support. Here's how it's supposed to work: First, you dial a 900 number (cost, \$10) to get a referral number. You then call a toll number and ask for tech support. The operator jots down your referral number and has someone return your call.

Here's our experience: First, we called the toll number without having obtained a reference number. The operator, suggesting we call a local dealer, gave us a few phone numbers. Turns out that one of those numbers was for *MacUser*. So we called ourselves. After a bit of confusion, the *MacUser* receptionist transferred us to assistant editor Darryl Chan, who answered the questions perfectly.

Oh, and when we finally did get through to CMS' tech-support representatives, they were able to answer only one of our three questions accurately (with no hints).

with a stand for making the drive extra stable in this position.

If you place the drives horizontally, you can easily — and safely — stack most of these drives on top of each other. Most of the horizontal drives we reviewed were made of metal or had a metal chassis covered by a plastic shell. A metal covering absorbs shock better than a plastic-only covering if the drive is dropped. Some of the drives include extra AC outlets that enable you to plug other peripherals in to the drive rather than in to what may be an already full power strip.

Mirror's appropriately named Smart-Stack drives offer an elegant solution to the problem of having multiple odd-sized storage devices. You buy a Smart-Source Power Base (\$119) and then snap in modules containing hard drives of various capacities as well as 3.5-inch

optical drives, DAT drives, and 105-megabyte SyQuest drives. The whole system forms a compact tower of storage on your desk (see figure 4) — but be forewarned that the entire stack shares the same fan and power supply.

Other drives are smaller and more totable and are designed to sit vertically next to your Macintosh (see figure 2). The smallest and most attractive of these are those from Liberty. The Liberty drives — unique among the drives we tested — also contain an internal battery pack, so you can use your drive when you don't have access to AC power. However, their small size has forced design constraints that may concern some users. For instance, the Liberty 50 Series drives use convection cooling rather than a fan to draw heat away from the mechanism. In addition, the drives use 25-pin SCSI connectors rather than the

figure 1

Hard-Drive Performance / Quantum leads the pack

The trend is clear—in our tests, drives equipped with 240-megabyte Quantum mechanisms were the overall performance leaders. (We also tested a prerelease 270-megabyte Quantum mechanism, which ran a bit faster than the 240-megabyte one.) In one test, opening the Photoshop image, drives with Maxtor and Seagate mechanisms performed

slightly better than those with Quantum 170-megabyte mechanisms. Most of the drives we tested consistently outperformed the 80-megabyte Quantum mechanism that Apple used to ship with Macs.

The products are listed in the same order as they appear in "The Bottom Line."

MacUser Labs

C = Conner
M = Maxtor
S = Seagate
Q = Quantum

File Duplication

We timed how long it took each drive to duplicate a 13-megabyte file—an operation that both reads data from and writes it to the disk.

Folder Copy

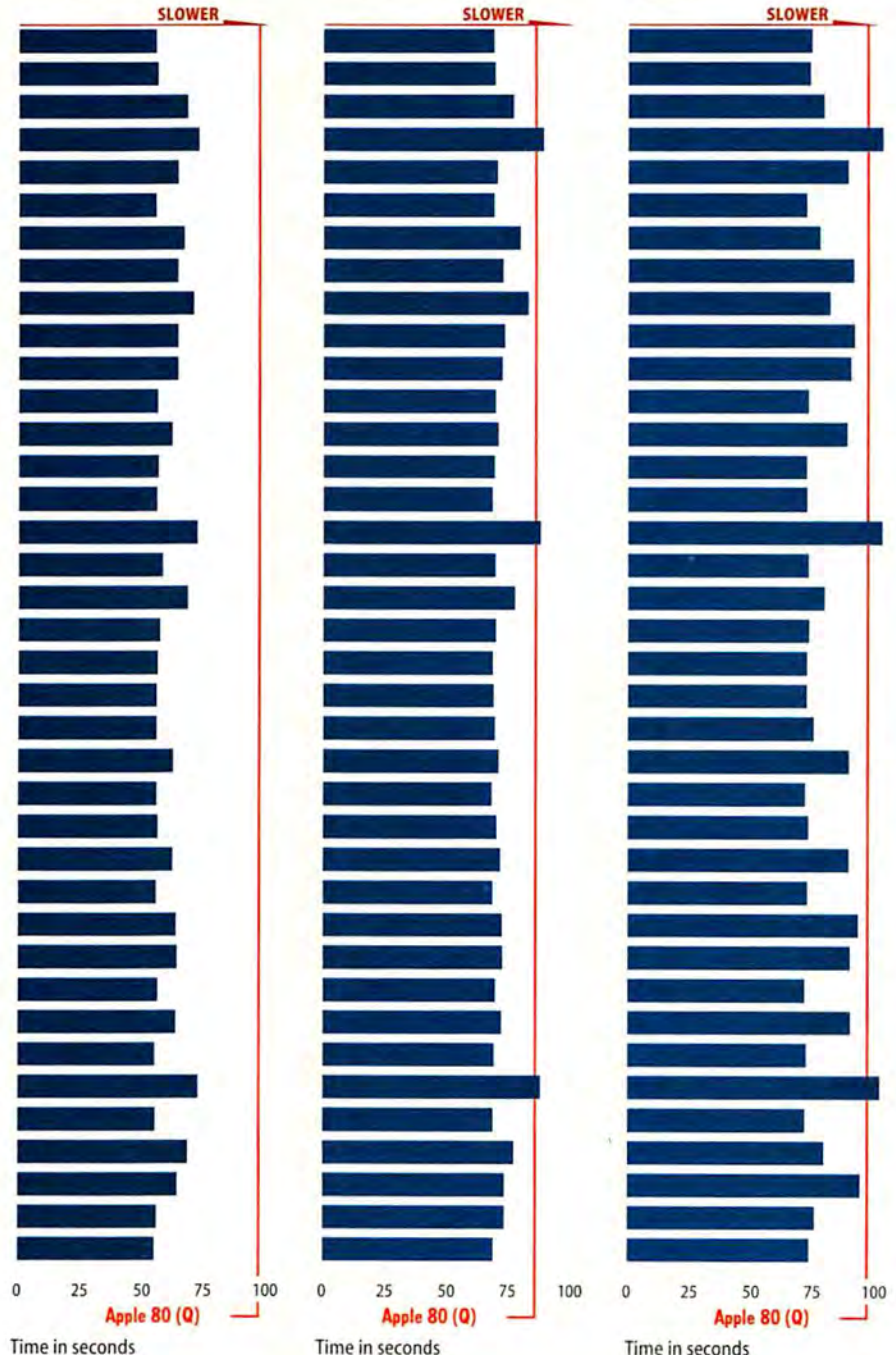
The drives took longer to copy a 5-megabyte folder filled with small files than to duplicate a 13-megabyte file, because of increased Finder overhead.

Photoshop

We timed how long it took to open a 13-megabyte Photoshop image. This operation tests the drive's ability to locate and read large files.

✓ APS Q 240 (Q)
✓ La Cie QDrive 240 (Q)
✓ Optima MiniPak 240 (S)
Airbourne Conner 170 (C)
Airbourne Quantum 170 (Q)
Airbourne Quantum 240 (Q)
APS MX 245 (M)
APS Q 170 ELS (Q)
Focus 210MB (M)
La Cie QDrive 170 (Q)
La Cie Tsunami 170 (Q)
La Cie Tsunami 240 (Q)
Liberty 50 Series 170 (Q)
Liberty 50 Series 240 (Q)
Lovièl 240 (Q)
MacDirect Conner 170 (C)
MacProducts Magic 240 (Q)
MegaDrive Mercury 240 (S)
Microtech Polaris 230 (Q)
Spin Q240 (Q)
TMS ProDrive LPS 240 ExtMac (Q)
ClubMac Quantum 240 (Q)
FWB PocketHammer 170 (Q)
FWB PocketHammer 240 (Q)
HTF RealTech LPS240 (Q)
IMS Quantum ELS 170 (Q)
IMS Quantum 240 LPS (Q)
Lovièl 170 (Q)
MacWarehouse PowerUser Pro 170 (Q)
MacWarehouse PowerUser Pro 240 (Q)
Mirror SmartStack 170MB (Q)
Mirror SmartStack 240MB (Q)
PLI 170 Turbo (C)
PLI 240 Turbo (Q)
Procom MD240 (S)
CMS Platinum 170 (Q)
CMS Platinum II 240 (Q)
Dynatek HDA 240 (Q)

✓ MacUser RECOMMENDS



individually grounded 50-pin connectors found in most drives. (The lightweight, totable La Cie Tsunami drives also use 25-pin connectors.)

The other vertical drives, like the larger horizontal drives, have fewer design issues to contend with, simply because they sacrifice the small hold-it-in-your-hand size of the Liberty drives. For instance, FWB's PocketHammer drives are 1.5 inches longer, 2+ inches taller, and 1 inch deeper than the Liberty ones, but they include a fan that cools the power supply and the mechanism and they use 50-pin SCSI connectors.

MYTH 3: A short access time indicates a fast drive

In theory it might. The access time tells you how quickly a drive can find any piece of data your computer needs. That would all be well and good if the industry used some standard way of measuring access time and if you had some way of figuring out how much time your drive spends accessing data.

The ads you read that claim a drive has, say, a 12-millisecond access time just can't be taken at face value. First, there's no standard definition of *access time*. Some people use the term interchangeably with *seek time* (the amount of time it takes the drive to find the data the Mac requests). Others give it a slightly different twist, defining it, say, as seek time plus the lag time before data transfer begins. Second, the companies that manufacture drive mechanisms measure access time in various ways — some use random-access time, some use sequential-access time, and some use an average of these times.

Even if you could find out what a drive's true access time was, you'd still need to find out how much time you spend each day waiting for the drive to access data as opposed to performing such tasks as transferring data to and from the Mac and writing data to its disk. Think about it — to figure this out, you'd first need to list exactly what tasks you perform each day and how long each



figure 2 / **Smallest of the small.** Of the totable candidates, only the Liberty 50 Series drive (upper left), with its battery or AC operation, is truly portable.

takes. Then you'd need to figure out what percentage of this time is dedicated to accessing data on the drive. Oh, and let's not forget to factor in whether or not those accesses are random or sequential. You see, if the drive has a read cache, then sequential reads (the kind of reads a drive performs when copying a large file) will be much faster than random-access reads (the kind of reads that happen when you sort a database).

Confused? Just use the results of our tests to get an idea of how a hard drive will perform for real-life jobs (see figure 1). We found that drives built with a Quantum 240-megabyte mechanism were the best overall performers, followed by drives with a Quantum 170-megabyte mechanism.

MYTH 4: Installing a hard drive is easy

It's not as hard as learning to program in C++, but it can be frustrating. Manuals are frequently unclear and poorly organized. (Among the companies providing clearly written and professionally produced manuals, FWB, La Cie, and Procom stand out.) And after all these years, you still have to deal with issues such as setting SCSI-ID numbers and providing proper termination.

Setting SCSI-ID numbers is actually easy. Each device on a SCSI chain must have its own identifying number, or SCSI ID. On the back of most drives is a single digit (usually between 0 and 7) that you can change by pressing a button or turning a wheel. The number 0 is usually reserved for the internal hard drive, and the number 7 is reserved for the

Mac. To set the SCSI ID, simply select a number between 1 and 6 that is not already being used by another SCSI peripheral. Only the La Cie Tsunami drives gave us any problems — these drives still use outdated DIP switches for setting SCSI IDs (see the "Hard-Drive Imponderables" sidebar).

In theory — but only in theory — providing proper termination is just as easy. The first and last peripherals on a SCSI chain should use a terminator (a resistor pack that increases the reliability of data transfer). If you have an internal drive, it is considered the first device — it's already terminated, so you don't have to worry about it. But you do have to worry about external devices. And frequently the rules don't apply, for reasons that few people — not even some electrical engineers — understand. If you run into termination problems, you may have to swap the order of the peripherals on your SCSI chain until the problems go away. Optima's MiniPak 240 has a light next to the SCSI connector that, when lit, means termination is working properly.

Some vendors provide *switchable* termination, in hopes of making installation more convenient. With switchable termination, you flip a switch on the back of the drive to turn termination on or off. (Externally terminated drives require the use of a physical terminator — a small plug you must manually add to the drive's SCSI connector.)

Other vendors, such as APS, La Cie, and Liberty, offer *active* termination, a scheme that can easily be confused with switchable termination, because it also uses a switch to turn termination on or off. But whereas switchable termination is a scheme designed solely for convenience, active termination stabilizes termination power across all data lines. You still have to flip a switch to turn termination on or off, but you get extra protection from distorted signals on the SCSI bus that can reduce data-transfer speed or cause other termination problems.

For the drives we received, only four vendors — ClubMac, IMS, MacProducts

figure 3

Hard-Drive Noise Levels / what's too loud?

The level of noise a drive produces depends on the type of fan used and how well insulated the drive is. If you work in a noisy office, you may not notice the drive's noise level. But if the sound of your computer's fan is enough to annoy you, then we suggest you purchase one of the quietest drives.

To understand just how quiet or loud a drive is according to our tests, you need to understand the decibel scale. Measurements on the decibel scale are logarithmic, not linear. A decibel level of 0 represents the threshold of hearing; a level of 140 is the threshold of pain. On this scale, an increase of about 10 decibels is required before a sound appears to be twice as loud. In our tests, therefore, the CMS Platinum 170 was twice as loud as the Mac's fan.

MacUser Labs

C = Conner
M = Maxtor
S = Seagate
Q = Quantum

NOISE IN DECIBELS

35.00	Typical public library
37.00	Macintosh fan
39.57	TMS ProDrive LPS 240 ExtMac (Q)
39.69	La Cie QDrive 170 (Q)
39.69	La Cie QDrive 240 (Q)
39.94	PLI 170 Turbo (C)
40.00	Typical living room
40.06	Dynatek HDA 240 (Q)
40.56	APS MX 245 (M)
40.68	FWB PocketHammer 240 (Q)
40.80	FWB PocketHammer 170 (Q)
41.04	Procom MD240 (S)
41.28	ClubMac Quantum 240 (Q)
41.88	MacDirect Conner 170 (C)
41.88	Microtech Polaris 230 (Q)
42.00	IMS Quantum ELS 170 (Q)
42.12	Optima MiniPak 240 (S)
42.59	PLI 240 Turbo (Q)
42.71	La Cie Tsunami 170 (Q)
43.06	Airbourne Quantum 170 (Q)
43.06	Lovièl 170 (Q)
43.06	MacProducts Magic 240 (Q)
43.06	Spin Q240 (Q)
43.29	APS Q 240 (Q)
43.41	Airbourne Conner 170 (C)
43.41	Lovièl 240 (Q)
43.53	APS Q 170 ELS (Q)
43.64	IMS Quantum 240 LPS (Q)
43.99	Mirror SmartStack 240MB (Q)
44.22	Airbourne Quantum 240 (Q)
44.56	Liberty 50 Series 240 (Q)
44.67	Mirror SmartStack 170MB (Q)
44.90	HTF RealTech LPS240 (Q)
45.01	MacWarehouse PowerUser Pro 170 (Q)
45.13	Focus 210MB (M)
45.13	MacWarehouse PowerUser Pro 240 (Q)
46.14	CMS Platinum II 240 (Q)
46.14	La Cie Tsunami 240 (Q)
47.36	CMS Platinum 170 (Q)
60.00	Conversational speech

LOUDER

USA, and TMS Peripherals — used archaic built-in, or internal, termination. If you buy one of their drives, you'll either have to keep it at the end of your SCSI chain or you'll need to open the box to remove the terminator with a pair of pliers.

MYTH 5: You need comprehensive customer service

You don't — not for these low-capacity drives. You need basic customer service: a toll-free tech-support number; reasonable access hours; knowledgeable, polite personnel; and quick responses to problems or questions.

What you don't need are costly extras such as extended warranties. Most companies currently provide standard warranties of two years (but be sure to check whether the two-year warranty includes the drive mechanism *as well as* the case and power supply). Chances are that two years from now, you'll want (or need) to move up to a higher-capacity drive or some other type of storage device.

While testing each company's tech support, the biggest problem we had was getting through. For instance, we had to leave several messages at both Airbourne and Dynatek before our calls were returned. ClubMac was hard to reach because the line was usually either busy or no one answered the phone. But for our all-time favorite tech-support tale, see the entry on CMS in the "Hard-Drive Imponderables" sidebar.

Most of the companies' tech-support personnel answered our questions correctly, although with varying degrees of politeness and helpfulness. Representatives at APS, FWB, IMS, La Cie, MacDirect, Microtech, Optima, and PLI were especially efficient, helpful, and polite when answering questions. Those at Dynatek had trouble answering two of our three questions, giving us the correct answer only after receiving hints from our caller. The technician we spoke to at Mirror was especially rude — when we asked him how to partition the disk,

he told us it was "a bad idea" and refused to help us out. Only after a second phone call and much pleading did he begrudgingly give us instructions.

MYTH 6: A drive is only as good as its software

All the drives we tested come with basic formatting and diagnostic software. On that level, there were no important life-or-death differences among the products. We found little correlation between slow benchmark-test results and the type of driver software we used.

Still, there are some differences in software that you should note. Drives from Airbourne, IMS, Liberty, and MacDirect ship with FWB's Hard Disk ToolKit, Personal Edition, a clearly designed formatting program that also provides options for password protection and disk partitioning. You can upgrade the Personal Edition to the full-fledged Hard Disk ToolKit for \$99. With the full version, you get a variety of high-end controls for optimizing drive performance as well as a manual that provides a lot of information on how hard drives and SCSI work. (FWB's PocketHammer drives ship with the full version of Hard Disk ToolKit.) For many users, however, this level of detail and customization is overkill.

Two other solid, easy-to-use formatting programs are Transoft's SCSI Director (included with drives from ClubMac) and CharisMac's Anubis Utility (included with drives from Lovièl and MacProducts). These programs also include password-protection and disk-partitioning options. But in each case, the handiest feature is the Auto Setup button, which lets you format, partition, and mount a disk with a single mouse click. APS' Alliance Power Tools, Hardware That Fits' RealTech Drive Utilities, and MegaDrive's Steadfast are each derived from SCSI Director and include many of the same features.

La Cie's Silverlining is a powerful but awkward utility that provides partitioning, password protection, and drive

spanning — a feature that fools your Mac into recognizing several small hard disks as one large one. Silverlining also enables you to optimize hard-drive performance by defragmenting files (a method of ensuring that files are written to one contiguous track of the hard disk), and it lets you create a SUM (Symantec Utilities for Macintosh) file for use with SUM II. Optima's Disk-Mount includes some of the same powerful options as Silverlining.

MYTH 7: Smart consumers know which drive mechanism is best

You can be an extremely smart consumer and still not know which mechanism is the best. That's because it's so hard to keep up with the various models that each mechanism manufacturer offers. (Most people can't even keep up with Apple's Macintosh lineup.)

For instance, by the time you read this, Quantum will have replaced its 240-megabyte mechanism with a 270-megabyte one (which our preliminary tests show is a bit faster). Some vendors may still sell drives equipped with the 240-megabyte mechanism — maybe even for bargain prices. Other vendors, such as FWB, are anticipating a shortage



figure 4 / **Drives with a difference.** The MegaDrive Mercury 240 (left) lets you remove the hard drive from the base and lock it away for safekeeping. The Mirror SmartStack system (right) forms a neat storage tower as you plug drive modules in to the base.

of 240-megabyte mechanisms and plan to offer a PocketHammer equipped with a 340-megabyte Conner mechanism for the same price as the current PocketHammer with the 240-megabyte Quantum mechanism.

That's why it's important for you to weigh a variety of factors, not just mechanism type, when buying a hard drive. For instance, as regards FWB, you should bear in mind that the company offers excellent tech support, uses high-quality cases, and provides excellent formatting and diagnostic software — and that its products generally cost a bit more than others with the same capacity. Will you go wrong if you buy a drive from FWB, even if you've never seen test results for a specific mechanism the

company uses? Probably not, given FWB's attention to quality and considering that the major mechanism manufacturers — companies such as Conner, Quantum, and Seagate — have consistently increased the performance and reliability of their products over the years.

THE FINAL MYTH: An inexpensive drive is a bad drive

There's a world of difference between *inexpensive* and *cheap*. Many of the drives we tested were inexpensive; none were cheap, shoddy, poorly performing turkeys. Competition among drive vendors remains fierce, driving prices down and quality up.

So don't cross inexpensive drives off your shopping list, but do ask questions. To keep up with the price wars, many vendors have had to skimp in some way. Some don't offer toll-free support numbers, and others use inconvenient internal termination.

And the next time someone tries to sell you a 15-year extended warranty for any computer peripheral, just tell them you've heard that line before.

Cheryl England is a *MacUser* senior editor.

CONTINUES ►

Directory / vendors of hard drives tested

Airbourne Computer Technologies

Billings, MT
800-436-8207
406-256-5806
406-256-5816 (fax)

APS Technologies

Kansas City, MO
800-235-2753
816-483-6100
816-483-3077 (fax)

ClubMac

Irvine, CA
800-258-2622
714-768-8130
714-768-9354 (fax)

CMS Enhancements

Irvine, CA
800-788-4267
714-222-6000
714-549-4004 (fax)

Dynatek Automation Systems

Toronto, ON
Canada
416-636-300
416-636-3011 (fax)

Focus Enhancements

Woburn, MA
800-538-8866
617-938-8088
617-938-7741 (fax)

FWB

San Francisco, CA
415-474-8055
415-775-2125 (fax)

HTF (Hardware That Fits)

Conroe, TX
800-364-3838
409-760-2400
409-539-4141 (fax)

IMS

Irvine, CA
800-643-3591
714-851-3092
714-851-1516 (fax)

La Cie

Beaverton, OR
800-999-0143
503-520-9000
503-520-9100 (fax)

Liberty Systems

San Jose, CA
408-983-1127
408-243-2885 (fax)

Lovièl

Minneapolis, MN
800-688-3697
203-483-0202
203-488-6130 (fax)

MacDirect

Chicago, IL
800-621-8462
312-664-1515
612-832-5622 (fax)

MacProducts USA

Austin, TX
800-622-3475
512-476-5295
512-499-0888 (fax)

MacWarehouse

Lakewood, NJ
800-255-6227
908-367-0440
908-905-9279 (fax)

MegaDrive Systems

Beverly Hills, CA
800-664-6342
310-247-0006
310-247-8118 (fax)

Microtech International

East Haven, CT
800-626-4276
203-468-6223
203-468-6466 (fax)

Mirror Technologies

St. Paul, MN
800-654-5294
612-633-4450
612-633-3136 (fax)

Optima Technology

Irvine, CA
714-476-0515
714-476-0613 (fax)

PLI

Fremont, CA
800-288-8754
510-657-2211
510-683-9713 (fax)

Procom Technology

Irvine, CA
800-800-8600
714-852-1000
714-852-1221 (fax)

Spin Peripherals

Newton Upper Falls, MA
800-466-1200
617-965-9882
617-965-6257 (fax)

TMS Peripherals

Boca Raton, FL
800-275-4867
407-998-9928
407-998-9983 (fax)

figure 5

Choosing a Hard Drive / what you need to know

Even though many people refer to hard drives as commodity items, they aren't. There are differences, although they are sometimes subtle. To pick a drive, you should first decide what is most important to you —

price, tech support, quality of the case — and then you should begin to narrow down the products. Our listing of important specifications will help you begin your search.

	Airbourne Conner 170	Airbourne Quantum 170	Airbourne Quantum 240	APS MX 245	APS Q 170 ELS	✓ APS Q 240	ClubMac Quantum 240	CMS Platinum 170	CMS Platinum II 240
List price	\$248	\$238	\$348	\$329*	\$269*	\$329*	\$249	\$413	\$591
Street price	\$248 (direct)	\$238 (direct)	\$348 (direct)	\$329 (direct)*	\$269 (direct)*	\$329 (direct)*	\$249 (direct)	\$360	\$430
Formatted capacity	160 MB	161 MB	232 MB	232 MB	161 MB	232 MB	232 MB	161 MB	232 MB
Mechanism manufacturer	Conner	Quantum	Quantum	Maxtor	Quantum	Quantum	Quantum	Quantum	Quantum
Termination	external	external	external	external*	external*	external*	internal	external	switchable
SCSI connectors	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin
Totale									
Extra AC outlets				●	●	●			
Power light	●	●	●	●	●	●	●	●	●
Access light	●	●	●	●	●	●	●	●	●
FCC Class B	●	●	●	●	●	●	●	●	●
Partitioning software	●	●	●	●	●	●	●	●	●
Backup software				●	●	●			
Password protection	●	●	●	●	●	●	●	●	●
Automatic setup				●	●	●	●	●	●
Money-back guarantee	●	●	●	●	●	●	●	●	●
Loaner drives available	●	●	●						
Toll-free tech support	●	●	●	●	●	●			
Warranty	2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years

✓ MacUser RECOMMENDS

*Active termination (but no AC outlets) is available in the DATerm case, which costs \$20 more.

†Pending.

	Liberty 50 Series 170	Liberty 50 Series 240	Lovièl 170	Lovièl 240	MacDirect Conner 170	MacProducts Magic 240	MacWare- house Power- User Pro 170	MacWare- house Power- User Pro 240	MegaDrive Mercury 240
List price	\$599	\$699	\$310	\$399	\$258	\$399	\$379	\$449	\$511 ⁵
Street price	\$599 (direct)	\$699 (direct)	\$310	\$399	\$258 (direct)	\$399 (direct)	\$379 (direct)	\$449 (direct)	\$511 (direct) ⁶
Formatted capacity	161 MB	232 MB	161 MB	232 MB	160 MB	232 MB	161 MB	232 MB	235 MB
Mechanism manufacturer	Quantum	Quantum	Quantum	Quantum	Conner	Quantum	Quantum	Quantum	Seagate
Termination	active	active	external	external	external	internal	external	external	external
SCSI connectors	25-pin	25-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin
Totale	●	●					●	●	●
Extra AC outlets					●				
Power light	●	●	●	●	●	●	●	●	●
Access light	●	●	●	●	●	●	●	●	●
FCC Class B	●	●	●	●	●	●	●	●	●
Partitioning software	●	●	●	●	●	●	●	●	●
Backup software									
Password protection	●	●	●	●	●	●			●
Automatic setup			●	●		●			●
Money-back guarantee	●	●	●	●	●	●	●	●	
Loaner drives available	●	●	●	●					
Toll-free tech support			●	●	●		●	●	
Warranty	1 year ⁷	1 year ⁸	2 years	2 years	2 years	2 years	2 years	2 years	2 years

✓ MacUser RECOMMENDS

⁵Requires a Mercury docking bay (\$419).

⁶Liberty extends the warranty to 2 years if you purchase a \$29 carrying case.

⁷**Requires SmartSource Power Base (\$119).

⁸†Class A.

Dynatek HDA 240	Focus 210MB	FWB Pocket-Hammer 170	FWB Pocket-Hammer 240	HTF RealTech LPS240	IMS Quantum ELS 170	IMS Quantum 240 LPS	La Cie QDrive 170	✓ La Cie QDrive 240	La Cie Tsunami 170	La Cie Tsunami 240
\$595	\$399	\$599	\$699	\$339	\$269	\$315	\$429	\$559	\$239	\$299
\$535	\$399 (direct)	\$500	\$590	\$339 (direct)	\$269 (direct)	\$315 (direct)	\$240	\$300	\$239 (direct)	\$299 (direct)
232 MB	201 MB	161 MB	232 MB	232 MB	161 MB	232 MB	161 MB	232 MB	161 MB	232 MB
Quantum external	Maxtor external	Quantum external	Quantum external	Quantum external	Quantum internal	Quantum internal	Quantum active	Quantum active	Quantum switchable	Quantum switchable
50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	25-pin	25-pin
		●	●						●	●
	●			●					●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
†	●	●	●		●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●	●
●	●									
	●			●	●	●	●	●	●	●
		●	●							
●	●			●			●	●	●	●
5 years	3 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years	2 years

Microtech Polaris 230	Mirror SmartStack 170MB	Mirror SmartStack 240MB	✓ Optima MiniPak 240	PLI 170 Turbo	PLI 240 Turbo	Procom MD240	Spin Q240	TMS ProDrive LPS 240 ExtMac
\$349	\$289**	\$369**	\$549	\$414	\$506	\$795	\$319	\$329
\$349 (direct)	\$289 (direct)**	\$369 (direct)**	\$545	\$370	\$460	\$575	\$319 (direct)	\$329 (direct)
232 MB	161 MB	232 MB	235 MB	160 MB	232 MB	235 MB	232 MB	232 MB
Quantum external	Quantum external	Quantum external	Seagate external	Conner switchable	Quantum switchable	Seagate external	Quantum external	Quantum internal
50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin	50-pin
			●					
								●
●	●	●	●			●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	††
●	●	●	●	●	●	●		●
	●	●	●					
	●	●	●		●			●
●	●	●	●	●	●		●	●
●				●	●	●	●	
2 years	2 years	2 years	1 year	2 years	2 years	2 years	2 years	2 years

'Dear John...' Just two words out of a million.

Nothing special about them, really. But put them together and suddenly they have the power to devastate.

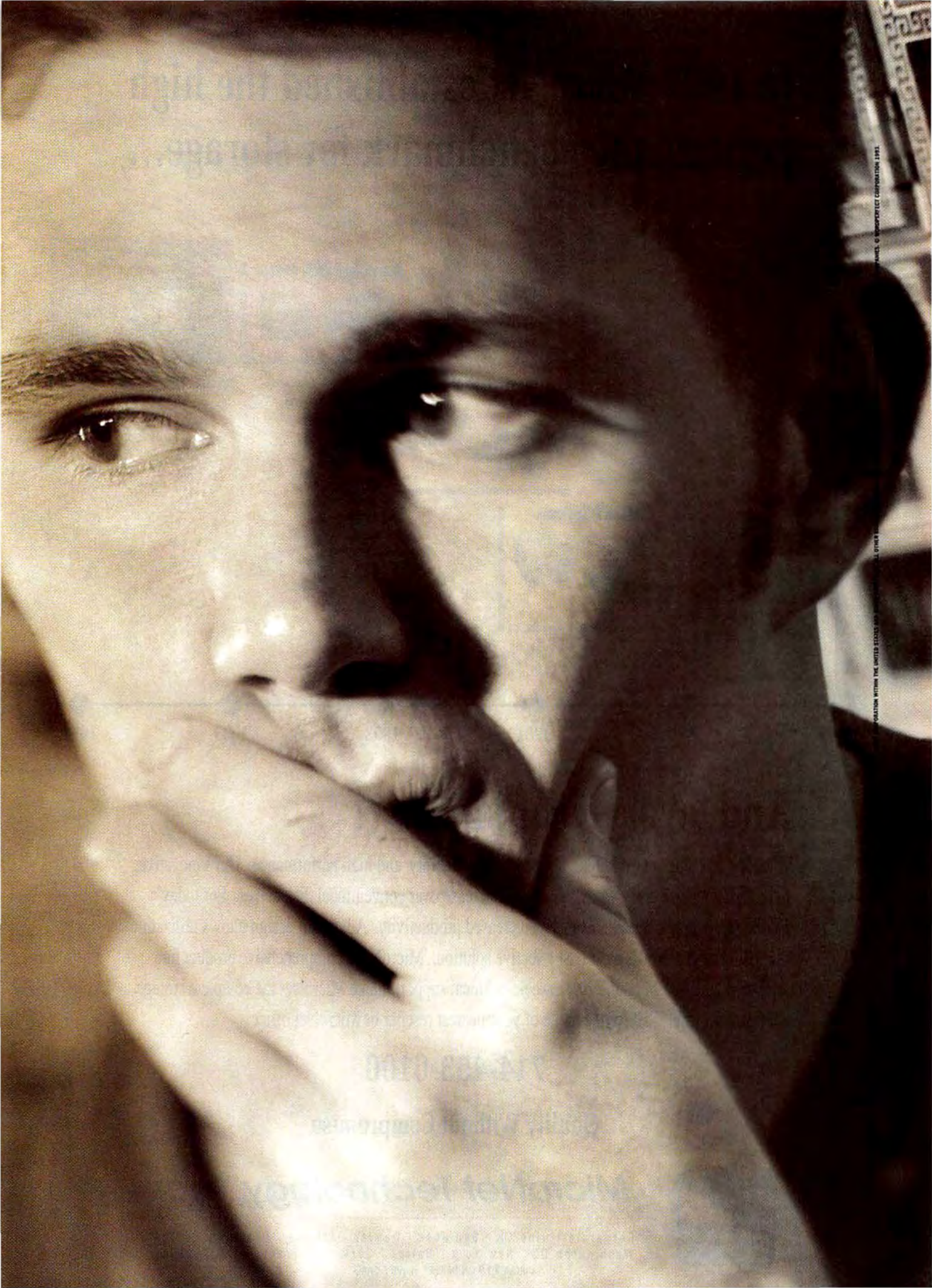
Words have a habit of doing things like that. With the right ones you can wage wars (personal or political). Or get a raise. Or change destiny. Just ask anyone who has ever uttered "I do."

So write a love letter. Write the president. Write a list and check it twice. Write a manifesto. Write your name in wet cement. Write, write, write, write, write.

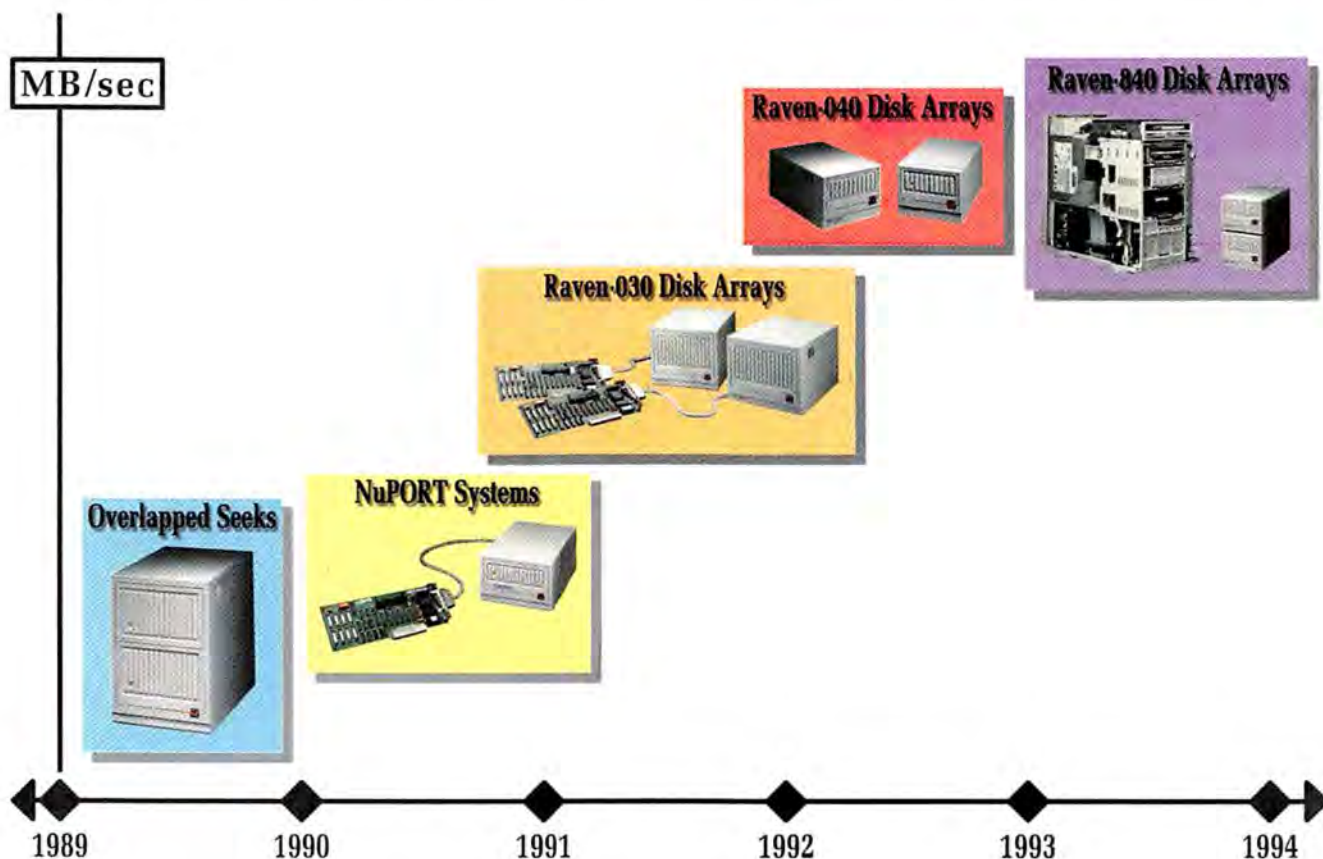
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CIRCLE 114 ON READER SERVICE CARD



EASY MONEY

Can you really trust software that claims to make it *fun* to

balance your checkbook? To find out, we examined six personal-finance packages that help you track your bank accounts and credit cards while monitoring your family's spending patterns. After evaluating their ease of use, flexibility in adapting to household needs, and breadth of functions, we found clear advantages to trusting your Mac as a personal financial adviser.

Categorical Imperatives

You begin working with each of these programs by establishing accounts and by designating categories for your income and expenses. Typical accounts

might be checking and savings accounts, credit-card accounts, and a household petty-cash fund. Transactions for each account — deposits, withdrawals, and transfers — are recorded in registers similar to your checkbook's or bank passbook's.

Whenever you enter a transaction — to record a deposit, say, or a written check — you are asked to assign it a category: You select a category from a scrollable list and then double-click on the category to assign it to the transaction. Income categories (salary, gifts, stock dividends, and so on) characterize where your money comes from, and expense categories (mortgage, groceries, subscriptions, and so

BY DARRYL LEWIS

on) reflect where your money goes.

You are not *required* to assign categories to your transactions, but doing so enables each of the software packages to generate reports and charts that illustrate your earning, saving, and spending patterns and help you plan for the future (see figure 1).

Naturally, your own household needs will determine the accounts and categories you select, but all six programs provide sample lists you can expand or modify as needed. All the programs except Survivor Software's MacMoney provide two sample lists, one for household use and the other for business. MacMoney includes only a business list, but Survivor Software will mail you a household list on request.

Dollars and Sense, from Software Developers Consortium, also provides a third list, whose categories correspond to those in ChipSoft's MacInTax income-

tax program. Intuit's Quicken also provides MacInTax-compatible categories, which are marked with small diamonds in the categories list.

Andrew Tobias' Managing Your Money, from MECA Software; Dollars and Sense; MacMoney; and Quicken each use one master category list that includes the transaction categories for all of your accounts. By contrast, CheckWriter Pro and Hi! Finance, both from Aatrix Software, maintain each account as a separate file with its own category list, which means you must individually customize each account's categories.

Most of the programs list categories alphabetically, which makes them easy to find when you're assigning them to transactions, but Dollars and Sense's and MacMoney's sample lists seem to be numbered arbitrarily. Apparently they follow some bookkeeping convention, but the logic was lost on us.

Splitting...

Accurate tracking of your income and spending means you must sometimes divide a particular transaction amount among several categories: Loan payments are part principal and part interest, for example; a single credit-card payment might include several categories, such as food, clothing, and travel expenses; and a weekly paycheck deposit might include wages and tips.

All the programs we considered allow you to split transaction amounts among categories, but the number of splits permitted varies: MacMoney 3.53 limits you to 8 splits, although version 4.0, which should be available by the time you read this, will allow 25; CheckWriter Pro and Hi! Finance each limit you to 10 splits; Dollars and Sense allows 23; and Managing Your Money and Quicken each permit unlimited splits. In the real world, 10 splits are usually more than adequate.

The Bottom Line

PERSONAL IS THE OPERATIVE WORD when it comes to evaluating personal-finance software: Every household and small business is unique in its financial-management needs, so we looked for software tools that are both powerful and easily adaptable to your individual requirements. We began with a study of checkbook- and bank-account-management features and then took a look at budget-planning options and other features that help you keep tabs on your precious cash.

⊕ = OUTSTANDING
● = ACCEPTABLE
⊖ = POOR

★★★★ Quicken 4



Ease of use and abundant features make Quicken 4.0 (\$69.95 list, \$39 street) the top choice for managing home finances. An intuitive interface, excellent manual, and extensive on-line help simplify even sophisticated financial tasks. Whether you're playing the market or just balancing your checkbook, Quicken is a great deal.

	PRICE/ PERFORMANCE	CUSTOMER SERVICE	SUITABILITY TO TASK
★★★★ Andrew Tobias' Managing Your Money 5.0	⊕	●	⊕
★★★★ Hi! Finance 5.0	●	●	●
★★★★ CheckWriter Pro 5.0	●	●	●
★★★★ MacMoney 3.53	⊖	●	⊖
★★★ Dollars and Sense 5.0	●	⊖	⊖

Listing is alphabetical within groups of equal mouse ratings.

Get Rich (Click)/quotes on-line

IF YOU INVEST IN FINANCIAL SECURITIES, you need more than a computerized checkbook to address your financial-software needs. Three of the programs we reviewed — Andrew Tobias' Managing Your Money 5.0, Hi! Finance 5.0, and Quicken 4 — provide tools for managing stocks, bonds, and mutual funds. (CheckWriter Pro 6.0, which should be available by the time you read this, will include the same investment-tracking tools as Hi! Finance 5.0.) We also looked at Reality Technology's WealthBuilder by Money Magazine 2.0, an investment-specific program with no checkbook feature. These programs provide investment-management tools that track the prices you paid for your holdings, the number of shares you own, and the current value of your portfolio and can handle dividends, capital gains, and stock splits.

Setting up a portfolio account is straightforward in all four programs. Entry screens are provided for stocks, mutual funds, and (except for Hi! Finance) other securities such as options and bonds.

WealthBuilder's portfolio setup is similar to the checkbook programs', but its preliminaries set it apart: After quizzing you on your income, age, family status, savings and retirement goals, and investment philosophy (aggressive, conservative), WealthBuilder offers advice on how to invest to reach your objectives.

Once you've established your portfolio accounts, making transactions is the next logical step, and the chief difference among the programs is the user interface.

Quicken's investment interface guides you with Qcards and self-explanatory transaction windows. In fact, the only drawback of Quicken's investment interface is the abundance of windows you may end up with on-screen.

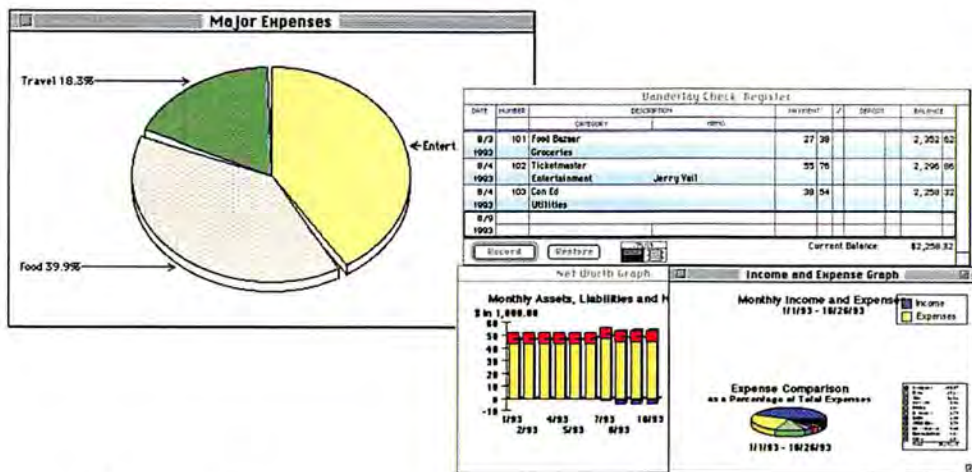


figure 1 / **Graphing tools** are a hallmark of all the personal-finance packages we considered, but they vary greatly in their functionality: MacMoney 3.53 (left) permits just one nonresizable graph to be open on-screen at a time, and most of the program's features are inaccessible while the graph is displayed. Quicken 4 (right) can generate multiple, resizable graphs without limiting access to tools.

... and Reconciling

One advantage of an electronic checkbook becomes apparent when it's time for that least favorite of rituals — reconciling account balances and bank statements. The procedure is the same in all programs: First you enter any service charges and interest that appears on your statement; then you make a check mark

in an on-screen list next to those transactions that also appear on your statement; and finally, you click on the reconcile button. More often than not, the account balances. But when it doesn't, each program tells you how much you're off, which means it's up to you to scroll through your transactions to locate the discrepancy.

Should you get stumped, you can use the option each program provides for automatically adjusting your balance to conform with the bank statement. (Because banks make mistakes too, we prefer to hunt down the error.)

Quicken has the slickest interface for reconciling: Click on Reconcile, and a screen appears in which you enter your

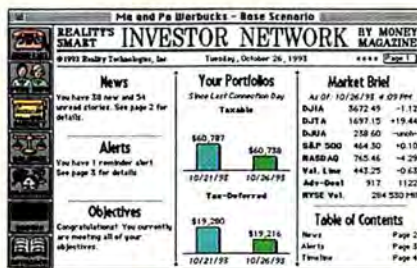
Hi! Finance puts transaction management at eye level by relying on lots of icons. Its interface is a bit clumsy, however, and the program assumes that all of your investments are either stocks or mutual funds. If you're interested in options, look elsewhere.

Managing Your Money's investment navigation screen is less effective than its account-tracking interface. It uses the intuitive flowchartlike arrangement of action buttons but obscures their purpose by relying too heavily on Wall Street-speak: *Open positions*, *closed positions*, and *CMAs* (cash-management accounts) are among the less-than-obvious terms used by the program.

Updating investment prices is easy in all four programs, but only Hi! Finance and WealthBuilder make it automatic with optional updates from on-line services. Hi! Finance can tap into existing accounts on CompuServe, Prodigy, Dow Jones, or America Online for price updates.

Reporting tools in all four programs help you track your investments' progress. Managing Your Money's tabular and graphical portfolio snapshots are the best among the checkbook programs, but WealthBuilder's reports are the timeliest, thanks to optional automatic daily price updates.

WealthBuilder's greatest strength as an investment tool is its on-line information service, supplied by the program's developer, Reality Technologies. Reality's database service offers not only prices but also profiles of stocks and mutual funds culled from a Dow Jones information service and the Morningstar mutual-fund research service. The



data includes historical performance and risk ratings.

WealthBuilder is not without limitations. Database information is not printable, and most print options must be chosen from a rigid set of templates — you can't create customized reports.

At a flat rate of \$19.95 a month or \$215.40 a year, WealthBuilder's Platinum Plan provides an information database and

unlimited access to the Reality on-line service, which updates stock quotes throughout the day and updates databases monthly. The more affordable Gold Plan (\$12.95 a month or \$119.40 a year) provides quotes and updates but no stock and bond research data or historical pricing information. WealthBuilder 3.0, which will be available by the time you read this, will be even more versatile: Using criteria you select, its Smart Investor system will retrieve stories or abstracts concerning your investments from the Dow Jones News Service. Unlimited access will cost \$6.95 per month beyond the cost of the Gold or Platinum Plan database services. / Shelly Brisbin

WealthBuilder by Money Magazine 2.0

LIST PRICE: \$69.99.

STREET PRICE: \$60.

PROS: Optional on-line databases provide daily security-price updates, stock-performance histories, mutual-fund-performance reports, and risk ratings for stocks.

CONS: No checkbook- or bank-account-record-keeping features.

COMPANY: Reality Technologies, King of Prussia, PA; 800-346-2042 or 215-277-7600.

interest payments and service charges. Make the entries and click on the OK button, and you're taken to a screen that lists unreconciled transactions. MacMoney has a specific entry screen for service charges, but it treats interest payments as deposits. The other programs require you to treat interest payments as deposits and service charges as withdrawals.

Printing Checks

All six personal-finance packages are able to print checks on standardized check forms, and they all include information on where and how to buy blank checks. CheckWriter Pro and Hi! Finance are the only ones that print checks on *any* paper. You can use them to print on your bank's standard-issue checks, or you can use the Forms Designer utility, included with each of the Aatrix programs, to create custom checks. Aatrix even offers an optional \$399 laser-printer-toner-cartridge kit with MICR (magnetic-ink character recognition) toner, which lets you use virtually any laser printer to print checks that can be processed by banks' automatic check scanners.

Other Features

Account-management tools help you pinpoint your current financial standing, but personal-finance software also helps you look to your financial future.

CheckWriter Pro, Hi! Finance, Managing Your Money, and Quicken can credit a loan account automatically each time you write a check to a creditor. The same four programs each have a selection of quick financial calculators that let you project interest accumulation on savings, forecast savings from loan prepayment, and so on. CheckWriter Pro and Hi! Finance have the widest variety of such tools, including calculators for auto purchasing, college planning, life-insurance needs, loans, retirement planning, and savings goals, and they even include two tongue-in-cheek tools for fortune-seekers: One generates lottery numbers, and the other forecasts how soon you can get rich in a pyramid-sales scheme.



Andrew Tobias' Managing Your Money 5.0

RATING: ★★★★★

LIST PRICE: \$39.95.

STREET PRICE: \$35.

PROS: Outstanding tax-planning features. Investment tracking. Well-designed user interface. Includes CheckFree electronic-bill-paying software.

CONS: Investment tools rely too heavily on financial jargon.

COMPANY: MECA Software, Fairfield, CT; 800-288-6322 or 203-255-1441.



CheckWriter Pro 5.0

RATING: ★★★★★

LIST PRICE: \$79.

STREET PRICE: \$47.

PROS: Prints checks on plain paper. Forms Designer lets you create custom checks. Extensive calculator tools for projecting interest income, loan fees, and insurance needs.

CONS: Interface less than intuitive.

COMPANY: Aatrix Software, Grand Forks, ND; 800-426-0854 or 701-746-7801.

Interface-Off

After consulting figure 4 to determine which products have the features you need, chances are you'll find more than one candidate. To narrow your choice

further, consider price (this is about finances, after all) and ease of use. In particular, because most of us aren't bookkeepers, a good program should have an intuitive user interface that helps you

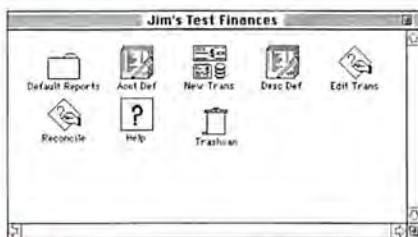


figure 2 / Andrew Tobias' Managing Your Money's navigation screen (top) helps you find the tools you want quickly. Dollars and Sense's desktop (bottom) strives to be intuitive but fails, because its icons are not self-explanatory.

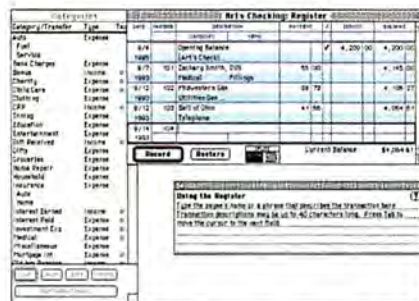
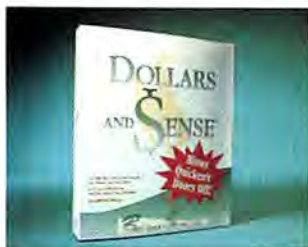


figure 3 / Need reminders? CheckWriter Pro (top), Andrew Tobias' Managing Your Money, and Hi! Finance integrate category lists into their transaction windows so you'll remember to keep complete records. Quicken 4 (bottom), like the rest of the programs we evaluated, presents categories in a stand-alone window.



Dollars and Sense 5.0

RATING: ★★★

LIST PRICE: \$69.95.

STREET PRICE: \$69.

PROS: Excellent documentation, including a manual and a third-party textbook on the program.

CONS: Nonintuitive interface. Error-prone system for transaction entry.

COMPANY: Software Developers Consortium, Salt Lake City, UT; 801-288-1222.



Hi! Finance 5.0

RATING: ★★★★★

LIST PRICE: \$99.

STREET PRICE: \$79.

PROS: On-line tracking of securities prices. Prints checks on plain paper. Forms Designer lets you create custom checks.

CONS: Securities tracking limited to stocks and mutual funds.

COMPANY: Aatrix Software, Grand Forks, ND; 800-426-0854 or 701-746-7801.



MacMoney 3.53

RATING: ★★★

LIST PRICE: \$89.95.

STREET PRICE: \$57.

PROS: Low storage and memory requirements make it suitable for use on a dual-floppy-drive Mac.

CONS: Stark interface. Limited graphing functions.

COMPANY: Survivor Software, Inglewood, CA; 800-369-4691 or 310-410-9527.



Quicken 4

RATING: ★★★★★

LIST PRICE: \$69.95.

STREET PRICE: \$39.

PROS: Intuitive interface. Superior ease of use. Includes CheckFree electronic-bill-payment software. Tracks securities prices. Outstanding documentation.

CONS: Dependence on multiple windows can crowd desktop.

COMPANY: Intuit, Menlo Park, CA; 800-624-8742 or 415-852-9696.

become familiar with the software's functions and find the tools you need quickly.

Quicken's transaction-entry screens look the most like the standard paper forms they represent. And although each program can store names, addresses, and phone numbers for instant placement into transactions you enter, only Quicken anticipates name and address information each time you enter a transaction. As you're typing the name in a transaction, Quicken fills in a previously entered name, based on the characters you've typed. This feature, called Quick-Fill, is a real time-saver.

None of the other programs anticipate as you type, as Quicken does, but Dollars and Sense, MacMoney, and Managing Your Money come closer than the others. With these programs, you can type a few letters of the name you need and press a hot key (use Command-F for MacMoney and the Tab key for the other programs). If you've typed sufficient information for the program to identify the name accurately, the name is filled in for you. Otherwise, the names list opens, prompting you to double-click on the correct name. With the other programs, you must open the names list manually and select a stored name.

Quicken is also the only program that allows you to enter transactions directly into the account register or by using a transaction screen. This means that if you've written a check in your paper checkbook, Quicken, unlike its counterparts, doesn't require you to write the check again on-screen. Instead, you simply enter the appropriate information into the program's check register. This gives Quicken an intuitive feel that's missing in the other products, but there

is a minor penalty: Quicken can't automatically enter check numbers; you must press the + key to enter the next check number.

Dollars and Sense and Managing Your Money each use graphical navigation screens that nearly eliminate the need to hunt through menus (see figure 2). Dollars and Sense mimics the Mac desktop, assigning clickable icons to particular tasks and even enabling you to create custom icons for often repeated actions.

CheckFree / convenience at a price

IF PAYING THE MONTHLY BILLS brings out your antimail bias, the CheckFree electronic-bill-paying service might be the ticket. CheckFree — bundled with Andrew Tobias' Managing Your Money 5.0 and Quicken 4 and available separately from CheckFree Corp. — lets you pay bills electronically from your desktop. You use your modem to transmit payment instructions to the CheckFree service, which deducts the money from your checking account and makes your payment for you.

The price of convenience is more than you'd pay for your own checks and the postage to mail them: CheckFree costs \$9.95 per month for as many as 20 transactions and \$3.50 for each additional batch of 10 transactions. You also have to be wary of the illusion

of instant payment: Once CheckFree gets your instructions, it mails a paper check the old-fashioned way, so you must diligently adhere to CheckFree's rules about transmitting payment orders five business days before the payment due date. / Darryl Lewis

CheckFree 3.0

LIST PRICE: \$29.95.

STREET PRICE: \$24.95.

PROS: Eliminates need to write checks or mail payments for most recurring expenses.

CONS: No checkbook- or bank-account-record-keeping features. Service costs more than paper checks plus postage.

COMPANY: CheckFree Corp., Westerville, OH; 800-882-5280 or 614-898-6000.

figure 4

Features of Finance Software / beyond the checkbook

Checking features top the list of essentials in a personal-finance software package, and all the programs we evaluated offer the basics: Each maintains registers for your bank accounts, and each enables you to enter checks on-screen and then print them, using special forms. As

you see in the list of features presented below, some products offer a variety of useful features beyond checkbook automation. If your needs include investment tracking, take a look at the "Get Rich (Click)" sidebar.

	Andrew Tobias' Managing Your Money 5.0	CheckWriter Pro 5.0	Dollars and Sense 5.0	Hi! Finance 5.0	MacMoney 3.53	Quicken 4
Tracks bank and credit-card accounts	●	●	●	●	●	●
Tracks assets and liabilities	●	●	●	●	●	●
Password protects account files	●	●	●	●		●
Reminds you to back up account files		●		●		
"Remembers" names of regular payees	●		●		●	●
Tracks investment portfolios	●			●		●
Downloads securities prices				●		
Prints checks on plain paper		●		●		
Estimates income tax	●					
✓ MacUser RECOMMENDS						

Despite this versatility, the interface is not particularly intuitive, because the icons' functions are not immediately obvious. Dollars and Sense's transaction-entry screens are also flawed: Screens for entering checks, deposits, and withdrawals are identical and, therefore, quite easy to mistake for each other. What's more, each screen has increase and decrease entry columns that make it far too likely that you'll make an error. The other programs sidestep this problem by presenting only one amount-entry space in each transaction screen.

In contrast, Managing Your Money's navigation is far more approachable: Clicking on one of the five buttons on the left side of the window (Remind, Money, Tax, Invest, and Plan) causes appropriate action buttons to appear in the main part of the window. Action buttons are arranged in a flowchartlike fashion that guides you logically toward the tool you need.

CheckWriter Pro, Hi! Finance, and Managing Your Money include a handy scrolling category list in their check-entry screens (see figure 3). By its very presence, the list prompts you to assign categories to transactions, which fosters

more-accurate reports. The remaining programs display categories in stand-alone windows.

Financial Aid?


All the programs provide on-screen help, but Quicken has the most extensive, context-sensitive help of the group. It supports Balloon Help and also gives you the option of displaying instructional Q-cards, which supply context-sensitive help. CheckWriter Pro and Hi! Finance also have good context-sensitive help.

Hi! Finance, Managing Your Money, and Quicken each track portfolios including such investments as stocks, bonds, mutual funds, cash-value insurance, and loans or mortgages in which you are the lender (see the "Get Rich (Click)" sidebar).

Summing Up

Quicken sets the standard for personal-finance software. Its QuickFill and excellent context-sensitive help; clearly written manual; and cleanly designed, intuitive screens and menus make it the most comfortable product to set up and use. With the addition of comprehensive loan and investment tracking, Quicken has

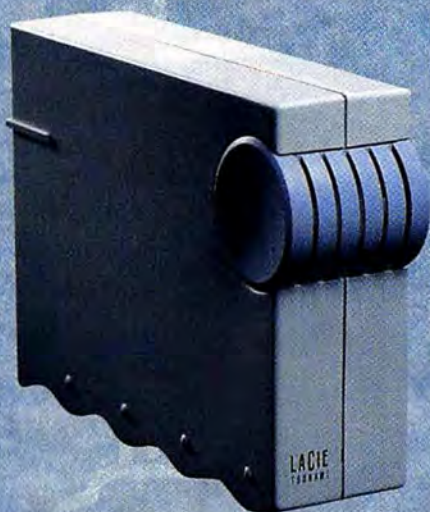
become a full-featured personal-finance program — far more than a mere computer checkbook.

Hi! Finance and Andrew Tobias' Managing Your Money lag slightly behind Quicken. Each features a thoughtfully designed interface that is understandable and easy to use, albeit less automatic, and each tracks the same wide variety of transactions Quicken does. Managing Your Money gets deeper into financial and tax analysis than any other package, producing reports that predict your income, expenses, and taxes, based on current earning and spending patterns. Hi! Finance is a good choice for market players, because it is the only program in this group that can download changing stock prices. CheckWriter Pro 6.0, which should be available by the time you read this, will also offer that ability. Dollars and Sense 6.0, also scheduled to ship soon, promises to add portfolio tracking to its account-management abilities. 

Darryl Lewis is a MacUser contributor, a prominent Mac consultant, and president of the National Macintosh Computer Society, a South Florida user group.

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screen frequency for detail rivaling that of 150-line-per-inch halftones.

With the 300i, Tektronix also targets performance. The new model employs a 24-megahertz RISC processor to achieve print times of two minutes per tabloid page as well as a new memory-management scheme that increases throughput about 400 percent, according to Tektronix. The \$9,995 printer ships with 10 megabytes of RAM (expandable to 22 megabytes). An EtherTalk option is also available.

Like the thermal-wax 200i and 200e models they replace, the new 220i and 220e printers use Tektronix's ColorCoat technology to lay down a clear primer coat of wax on plain letter-sized paper before applying colored-wax inks. The 220 units boast 600-x-300-dpi resolution at a clip of

printing on plain paper with its solid-ink and thermal-wax technologies, and now the company has announced products that promise faster and better plain-paper color printing than ever before.

The Phaser 300i is the next step in Tektronix's solid-ink, or *phase-change*, printer technology. Solid-ink crayons are melted, and then the colored wax sprays through tiny nozzles onto any paper up to tabloid size — from tissue paper to cardboard and even needlepoint mesh. The 300i's print quality shows a noticeable improvement over that of the printer's predecessor, the Phaser IIPXi. Text and graphics are sharp, thanks to the company's TekColor Finepoint technology, which modulates the printer's

two pages per minute, like the earlier 300-dpi models. As a result, Tektronix says these printers are ideal for workgroups that share printers over a network. In addition to built-in serial, parallel, and AppleTalk ports, Novell NetWare and Apple's EtherTalk are available as an option, as is TCP/IP support. The 220i (\$5,995) ships with 10 megabytes of RAM (expandable to 14 megabytes) and 39 PostScript fonts, and the 220e (\$3,995) ships with 8 megabytes of RAM and 17 PostScript fonts.

All three printers boast Adobe PostScript Level 2 and Tektronix's TekColor dynamic correction for simulating various display or printing conditions. 800-835-6100 or 503-682-7377. / Pamela Pfiffner



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SCREEN GEMS

LET'S FACE IT: Playing with images on-screen is easy, but getting great-looking input and output from your desktop system is hard. What's the best halftone frequency for a laser printer? (What's a halftone, anyway?) What are the best settings for scanning color images in Adobe Photoshop? If such questions trouble you, pick up PeachPit Press' *Real World Scanning and Halftones*, by David



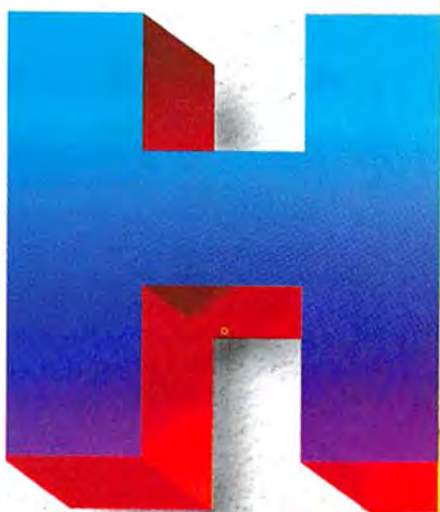
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Software Development Update

PDI

Mr. Thomas Karsmough
Emergency Enterprises
220 University Avenue
Cambridge, ON

Mr. Frank Jellison
Thursday, June 24, 1993

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The Hocus-Pocus of OPI

Open Prepress Interface (OPI) may seem like sleight of hand, but this image-replacement strategy is gaining favor with publishers. Here's why. BY STEVE HANNAFORD

IN THE PAST YEAR, many of the key quality and capability issues in the desktop-based prepress world were finally nailed down. The question is no longer what can be done and how well, but rather how *fast*. Speedy network servers and powerful software have helped fuel productivity. For graphic artists and publishers, these servers have advanced the use of a production strategy known as picture, or image, replacement. It's also called OPI (Open Prepress Interface), a once-specific term that is now used as a catchall phrase for various image-replacement strategies.

So what is OPI, anyway?

Origins

Image-replacement strategies were created for publishers who design page layouts in-house but leave the details of image scanning and color correction to prepress services. It wasn't designed for people who want to do their own image scanning, editing, and color correction with desktop tools.

A typical image-replacement scenario goes like this: The prepress house receives photographic images from a client; scans them; and returns digital, low-resolution versions of the images, which the client can place in a page-layout program. Image-replacement strategies limit modification of the scanned image to cropping and in some cases resizing or rotating, depending on the picture-replacement system used by the prepress service.

The client then delivers layout files complete with low-resolution images to the prepress house. When the prepress house outputs these files, high-resolution scans automatically replace the low-resolution versions, retaining all the cropping information.

The advantages of image replacement are big savings in time and file storage. The page-layout process is not encumbered by moving around huge color-image files (high-resolution color scans swell to 50



megabytes or more), and the client and the service bureau can easily exchange files over a standard modem connection. At the same time, the client can make good-looking color comps on an in-house printer at any stage. And because picture replacement is automatic, large publications that use many images find image replacement a fast way to streamline production.

Another benefit is a division of labor that makes sense for many publications: The finer aspects of color scanning and correction are left to the experts. The picture-replacement process is invisible to the page creator, requiring no special software at the client end. Existing OPI schemes support the most commonly used page-layout programs for the Mac. Compumation's Color Central OPI system, for example, works with QuarkXPress, Aldus PageMaker, Multi-Ad Creator, and FrameMaker.

How OPI Works

Originally, picture-replacement strategies were created to link page geometries and typography to high-end color electronic-prepress systems (CEPSs), such as those offered by Hell Systems (now Linotype-Hell)

and Crosfield. In 1989, as publishing moved to desktop systems, a group of vendors led by Aldus established the OPI standard as a way to avoid passing around enormous color-image files — especially when those files were simply used as placeholders for high-resolution files that were to be stripped in later. (Remember that back then, desktop-imaging tools were woefully inadequate. Two or three high-resolution scans on a page, at 20 to 30 megabytes apiece, ate up more resources than any user had available. Even on today's bigger, faster Macs, such enormous pages can clog networks, tie up hard disks, and slow on-screen scrolling to a crawl.)

As with traditional image replacement, the basic idea of OPI is to replace high-resolution scans with low-resolution FPO (for-position-only) versions. It varies slightly from system to system, but basically, OPI works like this (see figure 1): The prepress house scans an image at a high resolution and sends the scan to an OPI server, where special software makes an FPO copy that's tagged with a link identifier in the form of a PostScript comment. The high-resolution file remains on the OPI server, and the FPO file goes to the client. When the client sends

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DESKTOP PUBLISHING Prepress

AS ORIGINALLY DEFINED, OPI had limited usefulness. It assumed that images would be separated, retouched, corrected, and masked on high-end systems, so it worked only with TIFF files. OPI's inability to work with EPS files slowed the adoption of the OPI strategy.

the layout with all its FPO files in place back to the prepress shop for final output, the OPI software on the server reads the PostScript comments attached to the FPO files. The comments point to the high-resolution files on the server — or in some cases, on the network — and the OPI software places the high-resolution files in the layout before sending it to a PostScript imagesetter for film output.

The process is essentially the same for

publishers who have the budget for extensive in-house facilities, with one exception. After scanning the image in-house, the publisher can modify the image in Adobe Photoshop, for instance, before dropping it to the OPI server.

OPI Evolution

As originally defined, OPI had limited usefulness. It still assumed that images would be separated, retouched, corrected, and

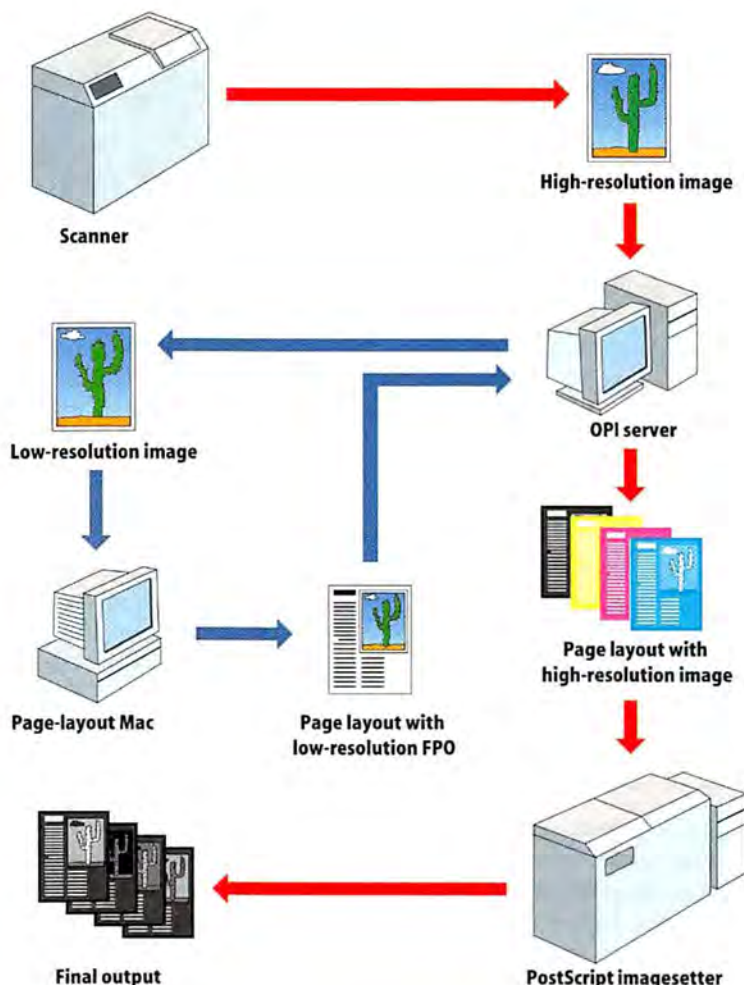


figure 1 / How OPI works: An image scanned at high resolution is sent to the OPI server. The OPI software generates a low-resolution version that the client uses for page layout. When the files are returned to the service bureau for final output on a PostScript imagesetter, the OPI software replaces the low-resolution image with its high-resolution counterpart.

masked on high-end systems, so it worked only with TIFF (Tagged Image File Format) files. But TIFF, a flexible format used primarily for continuous-tone images such as photographs, left something to be desired in this case: TIFF images by definition are always rectangular and cannot convey information about irregular borders, masking, or clipping paths — that requires conversion to the EPS (Encapsulated PostScript) format, which can contain that information.

OPI's initial inability to work with EPS files slowed the adoption of the OPI strategy. Increasingly, publishers wanted to use four-color EPS files rather than TIFF files, and most desktop color-separation work involved a variation of the EPS format called DCS (Desktop Color Separation).

A DCS file consists of a master file, which is used as a low-resolution preview, and four color-separated EPS versions of the image, one each in cyan, magenta, yellow, and black. All five pieces reside in one place, however — there's no picture replacement involved — so DCS files are even larger than equivalent TIFF files. (For more on DCS, see "Graphically Speaking," January '94, page 145.)

The popularity of DCS spurred vendors of OPI and competitive picture-replacement systems to handle DCS in addition to TIFF files. Sometimes advertised as OPI/DCS servers, these systems work by using the master file, or a form of it, as the client's FPO while keeping the four separated files on the server.

Who Needs OPI?

As a production system, OPI makes sense for image-laden publications that follow predictable workflow and production lines. Publications that reuse images, such as catalogs, are also good candidates for OPI.

For publishers, OPI is most practical if several conditions exist:

- You plan to allow the service bureau or in-house production department to do any retouching, photo composition, or color correction rather than trying to do the work yourself.
- The final image sizes can be set early in the design process, and the designers subsequently alter only the position and cropping of those images.
- You can decide early on which images to use in your publication and don't swap

OPI SYSTEMS

Several picture-replacement, or OPI, systems now exist. Some systems are proprietary, whereas others are not tied to any specific vendor's equipment.

OPEN SYSTEMS

Color Central

Compumation, Inc.
100 N. Patterson Street
State College, PA 16801
814-238-2120; 814-238-2246 (fax)

InterSEP

Archetype
100 Fifth Avenue
Waltham, MA 02154
617-890-7544; 617-890-3661 (fax)

PServe ADS and PServe Supra

COPS (Cooperative Printing Solutions)
5950 Live Oak Parkway, Ste. 175
Norcross, GA 30093
404-840-0810; 404-448-7821 (fax)

PROPRIETARY SYSTEMS

EtherServe

Helios; sold by Agfa Division, Miles, Inc.
100 Challenger Road
Ridgefield Park, NJ 07660
201-440-2500; 201-342-4742 (fax)

Hyphen SpectraServer/OPI Server

Hyphen, Inc.
181 Ballardvale Road
Wilmington, MA 01887
508-988-0880; 508-988-0879 (fax)

LinoServe

Linotype-Hell
625 Oser Avenue
Hauppauge, NY 11788
800-633-1900 or 516-434-2000;
516-434-2706 (fax)

Scitex APR (Automatic Picture Replacement)

Scitex USA
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OPI Tailor

It's unlikely you'll choose a service bureau based on which OPI system it uses, but if you plan to use OPI or buy a system for your company, there are several issues you should

explore, lest you get some nasty surprises.

What file types does the service bureau's OPI system support? Scitex CT; TIFF RGB; TIFF CMYK; DCS; four-color EPS; Photo YCC; and perhaps even PICT, now that Quick-Draw GX is upcoming? Early users of OPI were often frustrated by being restricted to using TIFF files when they preferred the DCS format. Make sure that the service

bureau's OPI server handles the file formats you need and feel comfortable working with.


How well do the low-resolution FPO files print on your in-house printer? Some OPI systems give the scanner operator a variety of resolution, line-screen, and format options for the FPO file in order to give you optimal output on your in-house color printer. The bottom line is that the FPO image should work with all aspects of your design system.

Does the OPI system provide cross-platform flexibility? If you create some of your pages on a PC or UNIX system instead of a Mac, be sure to see what file types the OPI system accepts.

How accurately does the OPI system handle the file changes you make? Can it accurately support two kinds of rotation, both of the frame box and of the image within the frame box (that is, the rectangle around the image stays the same, but the image itself can rotate inside the rectangle)? What about skewing? How well does it handle resizing? What about type printed over images? Run test pages to confirm that the system offers the support you need in these areas.

Does the system support masking? Most images come in a rectangular frame, but if you use image silhouettes and/or irregularly shaped image frames, make sure the server can handle them correctly.

Does the system provide some form of color management? Some OPI systems incorporate color management, so that your low-resolution files will give you a reasonably accurate idea of your final image's color. This leads to fewer surprises at the printing press, and you may even save yourself a round of Matchprints, for color-checking purposes.

Can the system perform a smart search for the high-resolution file, or does that file always have to be in a specific place? Some picture-replacement systems look for files only on the server's principal disk. Smarter systems can locate files even if you move them to other media, such as a removable cartridge. Searching for the high-resolution file is the trade shop or service bureau's headache, but you may want to avoid a shop where version confusion is an issue. 

Steve Hannaford is editor and publisher of *Prepress Business Observer*, a newsletter for the publishing industry.

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Vol. 3, Issue No. 7

Orchard News



Apple Trees Bear Fruit For 50 Years

is done by spraying chemicals that damage about half of the trees blossoms. A chemical that is already registered by the Environmental Protection Agency for use on other crops

Apple trees will bear fruit after approximately four years and will continue to do so for about fifty years. Apples are now grown twelve months out of the year in temperate latitudes of all continents. Until the early 1900's apples were not in season during the summer months. A breakthrough in the 1940's at Cornell University Agricultural College with controlled atmosphere storage extended the growing season year-round.



Color is the key to picking fruit at its peak. Bright reds, yellows, greens, or oranges tell you that harvest time has arrived.



Left alone an apple tree will yield a large crop one year and few fruit the next. The apple tree voluntarily sheds some apples, but to truly counteract this effect orchardists thin their trees each spring. This thinning



can likely be a safe and effective spray. Several of the tested products have been found to effectively damage apple flowers so that they cannot be pollinated. This can be done without harming bees, which are responsible for the pollination.

Continued pg. 6

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Continued pg. 6

\$60 Film & Separation cost — The Microtek 45t scanner*

\$1,105 Film & Separation cost — outside pre-press house**

Apples vs. Apples

Until now, your high-quality color scans for publication and four-color printing were usually done on expensive drum scanners. Owning and maintaining this type of equipment was not an affordable option.

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The ScanMaker 45t produces high-quality scans and separations from 35mm, 2 1/4 or 4 x 5 transparencies. The 45t features 36-bit color with interpolated resolution as high as 10,000 x 10,000 pixels and 2,000 dpi. Microtek's Dynamic Color Rendition technology produces from original 36-bit image data an optimized 24-bit file for use with today's 24-bit imaging software. The result—precise digital color. Also included with the 45t is Kodak's EKTACHROME Film Production Guide Q-60A for use with Microtek's Custom



Calibration Utility that builds a calibration profile for your specific scanner. Now add 12-bit grayscale scaling from 1% to 100% and a maximum 5" x 5" scanning area and you have a scanner that rivals even the most expensive scanning equipment.

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Priced thousands less than its nearest competitors, the ScanMaker 45t will soon pay for itself — who knows, maybe on your first multiple-image project.

For more information, or the name of your nearest authorized Microtek dealer, call **1-800-654-4160**.

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HANDS ON Bridges

REMOTE CONTROL /

FARALLON BEEFS UP TIMBUKTU

EASY REMOTE CONTROL of networked Macs and PCs has long been the forte of Farallon's Timbuktu. The newly released Timbuktu Pro for Macintosh (\$199) adds increased speed, industrial-strength security, and support for System 7 Pro's PowerTalk.

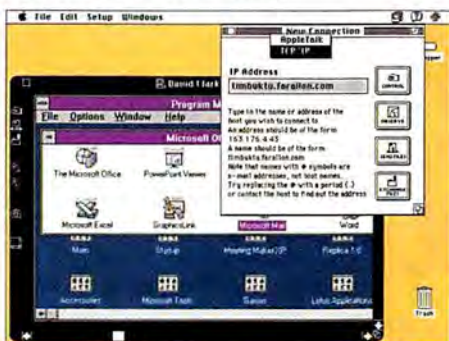
If you're making your Macintosh a host for others to log on to, Timbuktu Pro lets you create your own user accounts with passwords and privileges similar to those used by AppleShare. Network administrators have even more control over security and can set such criteria as minimum password requirements for users.

Timbuktu Pro clients and hosts are listed in PowerTalk's desktop Catalogs directory-services feature. You can also use Timbuktu Pro from the System 7 Pro desktop, using Timbuktu's PowerTalk Business Cards, which are similar to System 7 Pro's information cards and contain Control, Observe, Send, and Exchange buttons.

Timbuktu Pro uses compression to reduce network traffic, which Farallon says

can result in as much as a 400-percent speed improvement when running over Apple Remote Access. Timbuktu Pro also provides remote control of and file transfer over TCP/IP networks, including the Internet. Unfortunately, however, AppleTalk is still the only network option for PCs running Timbuktu for Windows, and there is as yet no support for Novell's IPX protocol.

Farallon has also released a minor upgrade for Timbuktu for Windows: Version 1.1 improves printing and adds support for more network-interface cards as well as for Farallon's revolutionary EtherWave, a daisy-chainable Ethernet system. 510-814-5100. / John Rizzo



POWERTALK /

E-MAIL EXPLOSION

YOU CAN NOW AUTOMATE YOUR E-MAIL responses with PowerRules for System 7 Pro (\$99.95), from Beyond, Inc. (617-229-0006), a big name in peer-to-peer e-mail in the PC world. PowerRules lets you build rules-based e-mail-handling systems that filter messages, automatically create replies, and perform other functions based on your mail's contents.

PowerRules uses System 7 Pro's PowerTalk and Apple's scripting language, AppleScript, to file and forward e-mail messages. Users can create simple macros or complex work-flow systems that can call other AppleScript-compatible applications to look up and forward data automatically. PowerRules works with any PowerTalk or PowerShare-compatible e-mail front-end or transport gateway.

StarNine (510-649-4949), maker of Mail*Link for PowerTalk/QM (\$99), a personal QuickMail gateway for System 7 Pro users, now has a personal gateway for the Internet. Mail*Link for PowerTalk/Internet (\$99) lets you receive Internet messages in your desktop In Tray and send messages from mail-enabled applications. Mail*Link works whether you access the Internet through a dial-up modem connection or through a LAN gateway with a POP (post-office protocol) account specified on your PowerTalk Key Chain. SLIP support will be available soon. StarNine is also planning an SMTP gateway for connecting UNIX mail and directory services to Apple's PowerShare server software. / John Rizzo



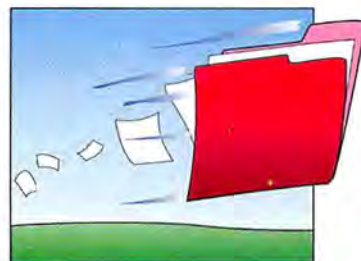
LANS: FASTER FILE TRANSFER

SUPERFAST NETWORKING STANDARDS are still the stuff of dreams, but Rad Unlimited Networking (201-529-4600), also known as RUN, has found a way to cut file-transfer times on currently installed networks to a fourth or less. RunWay, a software-only network accelerator, makes use of the unutilized bandwidth available even on busy networks. Most network traffic consists of short bursts of data, or *packets*. RunWay decreases the amount of time between packets being sent, so more packets can be sent over the network in the same period of time. RunWay automatically adjusts its data output to varying network loads and uses existing network protocols.

Tests show that RunWay moves files an average of 4 times as fast as standard networking. Preliminary tests of beta software in the MacUser office showed that RUN's claims are conservative: We saw a 100-percent increase over transferring files with System 7's file


sharing, and one file was transferred more than 20 times as fast. Entire folders can also be transferred, although the speed gain is less than that for single files. RUN claims that RunWay also improves speed over WANs, including T1 and satellite links, and will accelerate future high-speed networks such as Fast Ethernet.

The RunWay application (there are no extensions or control panels), which must be running on each Macintosh you want to transfer files to and from, can also be used on a server Mac. A version for LocalTalk and Ethernet networks costs \$395, and an all-network version, which also works on FDDI, costs \$795. / John Rizzo





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Expanding Your AppleTalk Net

Adding a router to your network can bring great benefits — if you install it correctly.

Here are four steps to success. **BY KURT VANDERSLUIS**

THINGS ARE BEGINNING to get out of hand. Your network has been growing: Even with Ethernet, performance is slow, particularly when the marketing department is moving one of its mega-megabyte files. And with PowerBooks proliferating, you want to hold on to one LocalTalk network, after all. But fortunately, the addition of one box, a router, may solve all of your problems.

A router is a key component of any AppleTalk network bigger than workgroup size. Routers join two or more network *segments* — whether LocalTalk, Ethernet, or token ring — to form an *internet*. They also act as traffic cops, keeping network traffic confined to the workgroup in which it belongs. In a multirouter network, routers find the most efficient path through the internet.

Setting up a router is less complicated than configuring a file server or mail server, but the stakes are higher. Adding a router

changes an internet's structure, affecting it at a basic level. A good router configuration improves your internet's manageability and performance; a poor configuration creates chaos. Taking the following four steps will help you avoid the biggest pitfalls:

Step 1

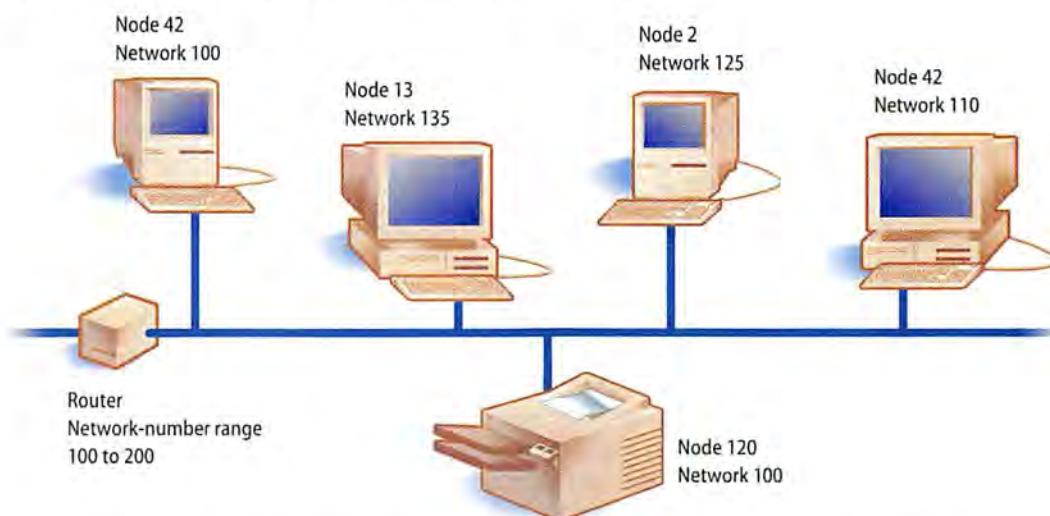
Get the Right Address. Each network segment connected to a router is treated as an individual network, and data travels from one network to another through the router. When setting up a router, you set two definitions for each network it's connected to. The first definition is the network address, which consists of one or more identification numbers; the second is the zone names associated with each of those networks. You have to supply network-address and zone-name definitions only for the networks that are directly connected to the router you're installing; it will query any other routers that are on the internet for their network-

address and zone-name definitions.

You set network-address and zone-name definitions via configuration software running on your Mac. Each router has its own setup software, so make sure you read your router's manual *carefully* before starting; it may include information about procedures or special features peculiar to your router. When you configure a router for the first time, it should be connected to your Macintosh only, not to the internet.

Each network in the internet must have a unique address — assigning any two networks the same address creates conflicts that can bring down the internet. A LocalTalk network is limited to a single number for its network address, but you can assign each Ethernet and token-ring network a range of network-address numbers. This increases the number of available node addresses in a network, because for each network address, you can have 254 node addresses (see the "Dynamic Addressing"

DYNAMIC ADDRESSING / nodes and networks



NETWORK ADDRESSING IS CRUCIAL. When a network has only one address, you are limited to 254 nodes, or devices, on the network, because there are only 254 available node addresses. But when you assign a *range* of network-address numbers to a network (possible with Ethernet and token-ring but

not with LocalTalk networks), each device in the network automatically picks a network address in addition to its node address. The advantages: The combination of the two addresses uniquely identifies each device on an internet and gives you room to add new devices as your internet grows.

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sidebar). My rule of thumb is that there should be at least five times the number of node addresses as there are nodes. If, for example, your Ethernet network has 200 devices on it, you'll need a range of four network-address numbers to give you the recommended 1,000 node addresses, which will keep network traffic moving smoothly and allow for future growth.

Figure out a network-addressing scheme that makes geographical sense for your internet. For example, you might assign the network on the first floor the range 1,000 to 1,999, the one on the second floor 2,000 to 2,999, and so on.

Step 2

Zone the Internet. Regardless of the size of the network-address number range, you can define as many as 255 zone names for each Ethernet or token-ring network and 1 for each LocalTalk network. The main purpose of zones is to help users navigate through the internet and locate services such as file servers and printers. Nodes can be associated with any of the zones defined but will at first be assigned to the default zone you specify to the router. Users on Ethernet and token-ring networks can then use the Network control panel to pick which one they want as the home zone for their Macs. You can place laser printers in a particular zone by using Apple's LaserWriter Utility.

Name zones after projects, geographical locations, or workgroups. When users open the Chooser, all the services they use should be in their default zones — they shouldn't have to search other zones for the services they need or scroll through the names of lots of printers or file servers they don't need.

Step 3

Avoid Network Conflicts. If your internet contains only one router, your job is now just about done. But if you have more than one router, you must check that you haven't given a router any definitions that conflict with those of other routers on the internet.

Routers that are configured as I've described are said to be *seeded*, or *seed*, routers, meaning that they tell other routers what they know about the internet. If you have more than one router, you can avoid conflicts by leaving one or more routers *non-seeded*, or without definitions. A nonseeded router begins service by asking the other

routers running on the internet to supply the address and zone information necessary for it to function on the internet.

Depending on the router, you can set it to be nonseeded either by leaving the network-address and zone-name fields in the router-setup software empty or by typing the number 0 in the network-address field and an asterisk in the zone-name field. Because nonseeded routers get their definitions from seeded routers, you can leave a router nonseeded only when the internet it's on has at least one seeded router.

Some seeded routers attempt to detect conflicts in order to avoid spreading information that might disrupt the internet. This so-called *soft seeding* is not an official AppleTalk procedure, so each of the routers that uses this method (those from Apple, Cisco, and Novell, for example) differs slightly in how it handles conflicts. Other routers, such as the Webster MultiGate and those in Shiva's FastPath series, could be called *hard-seeded*, because they do not check for conflicts and will insist on using the definitions you give them, even if other routers on the internet have the same definitions.

Regardless of the type of seeding you use, it's important to coordinate your network-address and zone-name definitions with any other network managers in your organization. Any mistakes you make will cause a host of problems, such as zones and services disappearing from the Chooser.

Step 4

Check Your Setup. You can check that a router is operating correctly by plugging your Mac in to each of the networks connected to the router. In each network, make sure the Chooser has the default zone and zone list you expect to see, and make sure the Network control panel shows all the correct zones. It is convenient to automate this procedure by making use of good router-verification software, such as Neon Software's RouterCheck.

These steps will help you avoid the most common router problems, but it's not over yet; you'll have to do some troubleshooting down the line. But *that's* another story. ☞

Kurt VanderSluis, the author of *Troubleshooting Macintosh Networks*, is president of The Network Group, in Seattle, Washington.

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Standard Resolution (dpi)	600 x 600	600 x 600	600 x 600	600 x 600
Optional Resolution (dpi)	800 x 800, 960 x 960 & 1200 x 1200	None	600 x 1200	None
Standard RAM	12 MB	12 MB	12 MB	16 MB
Virtual Disk Technology	✱†			
Enhanced Gray Scale	✱			
Price	\$3,995	\$4,595	\$5,495	\$3,995

† Optional

Statistics as of 6/93

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CIRCLE 126 ON READER SERVICE CARD



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Worse yet, the file was created by a program you don't have.

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All you need to do with the disk is pop it into your Mac's floppy drive.

And all you need to do with the file is double-click.

You see, AccessPC makes PC disks look just like Mac ones.

And it makes PC files instantly accessible to your Macintosh applications. ➔

It even lets you write PC files back to disk from your Mac programs.

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your Macintosh doesn't recognize, AccessPC opens it anyway—and asks you which Mac format to convert it to. ⚡

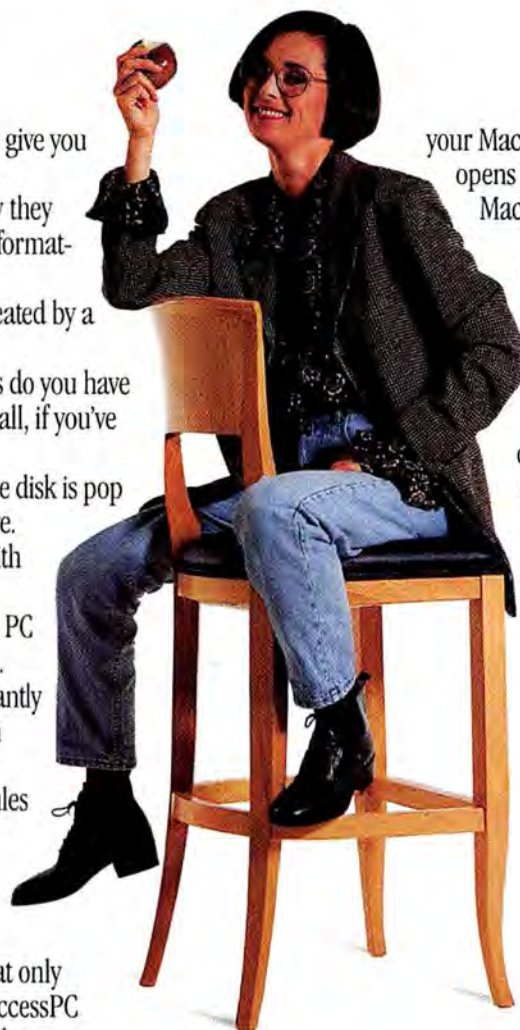
And when you go to write a Mac file to a PC disk, AccessPC lets you choose which PC format you want.

Speaking of choices, AccessPC works with all kinds of PC media—from floppies and flopticals, to Bernoullis, SyQuests and mageto-opticals. It lets you format and partition them, too.

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And discover the words that best describe AccessPC.

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Insignia

Multipatform Printing



As PC printing vendors add Mac-like printing features to their products, the good news is that they're also making them more accessible to Mac users. BY JOHN RIZZO

ONE ARGUMENT FOR the North American Free Trade Agreement (NAFTA) is that if we help bring a less developed country such as Mexico up to our own more prosperous level, our economy will benefit as well. Although I wouldn't put money on the soundness of this argument, I would wager that a similar contention holds true for the world of computing. We Macintosh users benefit when the other side — PCs, in this case — catches up with us.

Printing technology is a prime example. The big boys of the PC world, including Intel and Hewlett-Packard, are finally telling PC users what Mac users have known all along: Parallel ports are actually pretty slow printer connections; connecting printers directly to a network offers more flexibility for more users; and controlling printers from the desktop is better than controlling them via buttons on the printer itself.

What benefits do we Mac users get when PC printer manufacturers improve their products? For starters, we'll see lots more PC

printers showing up in our Choosers. Even better, it'll be easier to integrate Macs into corporate environments, so we can play with the PC majority on its own terms.

Networking Printers

The first major thrust in improving PC printing has been to put printers on Ethernet networks as stand-alone devices. Many high-end, multipatform printers (including those from Hewlett-Packard and Apple) already come with built-in Ethernet, but older or less advanced PC printers usually connect to a single PC or a network-server PC via a parallel port. Network access to such a printer is clumsy and slow.

Products that put PC printers directly on LocalTalk networks have been available for several years (GDT's \$399 PowerPrint LT, for example), but that doesn't help much, because Ethernet is where it's at in the PC world. Mac printers have long been able to connect to Ethernet, using devices such as Dayna's EtherPrint, but that's no great feat either, given that LocalTalk printers are already network printers whereas parallel

printers are not. Recently, however, HP and Intel have each come up with EtherPrint-type products for parallel printers.

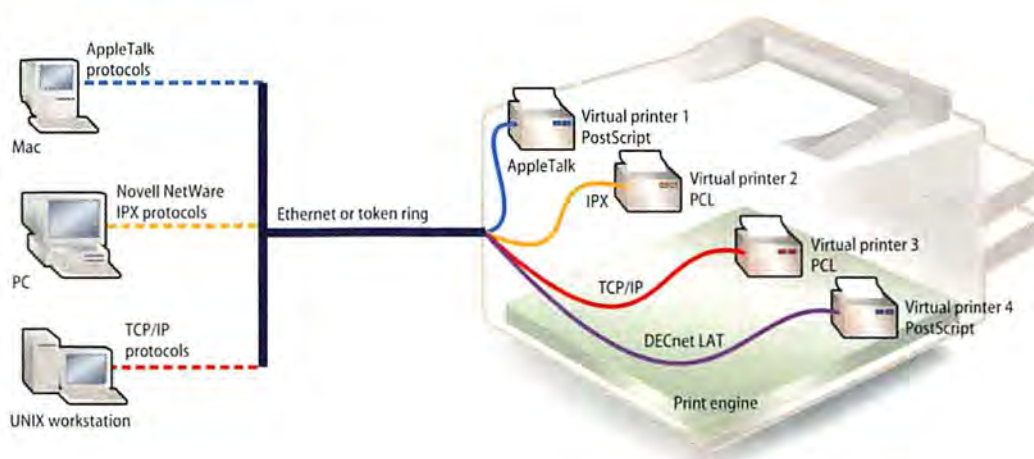
The HP JetDirect EX (\$499 for Ethernet networks, \$699 for token ring) is an external parallel-to-Ethernet (or parallel-to-token-ring) device that puts parallel printers on a network on which Macs can access them. The JetDirect EX is a tiny box, about the size of a 1-inch stack of index cards.

Unlike the EtherPrint, which is designed for Mac-only environments, the JetDirect EX is as platform-correct as can be. It's multipatform, supporting Macs as well as DOS, Windows, Windows NT, and UNIX machines. It's also multiprotocol, supporting TCP/IP, IPX, and AppleTalk. And it's multi-NOS, working with print servers on AppleShare, Novell NetWare, Microsoft LAN Manager, and IBM LAN Server networks. There is no Banyan VINES support, but there is a slot for a future ROM upgrade, so such support may become possible.

Intel has a similar box called the NetPortExpress XL (\$599 for Ethernet networks, \$799 for token ring). The lightweight

MULTIPLATFORM PRINTERS / *virtual printers*

DATAPRODUCTS' VPT (Virtual Printer Technology), used in the company's LZR 1580 and LZR 2080 printers, enables sharing of a single printer among multiple platforms. Users of Macs, PCs, and UNIX-based machines see one or more so-called virtual printers that offer the protocols and printer languages they need. Virtual printers can be set to print different resolutions and to use different paper trays.





When I Said "I've Got
To Have A Better Way To
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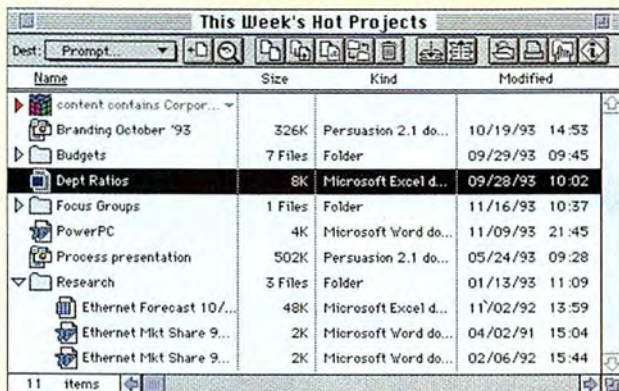
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Budgets	7 Files	Folder	09/29/93 09:45
Dept Ratios	8K	Microsoft Excel d...	09/28/93 10:02
Focus Groups	1 Files	Folder	11/16/93 10:37
PowerPC	4K	Microsoft Word do...	11/09/93 21:45
Process presentation	502K	Persuasion 2.1 do...	05/24/93 09:28
Research	3 Files	Folder	01/13/93 11:09
Ethernet Forecast 10/...	48K	Microsoft Excel d...	11/02/92 13:59
Ethernet Mkt Share 9...	2K	Microsoft Word do...	04/02/91 15:04
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NetPortExpress XL can be attached to the back of a printer with Velcro fasteners. It has some extra features too, including a spooling function that supports as many as 32 print queues and the ability — with its two parallel ports and one serial port — to support three printers. As for its platform-correctness credentials, the NetPortExpress XL can simultaneously support IPX, TCP/IP, and AppleTalk networks, but at the moment it works only with the NetWare NOS (including NetWare for Macintosh). Support for LAN Manager and Windows NT Advanced Server is expected by the middle of the year.

Catch-up Conspiracies

For Mac users, an Ethernet connection alone is not enough to make PC printers accessible. Macs need the correct driver to communicate with the printer software. If the PC printers are PostScript printers, the Mac's LaserWriter driver should work fine. But if the printers speak a PC language such as PCL (Printer Command Language), you'll have to add the appropriate driver. Products such as GDT's PowerPrint (\$149) and Orange Micro's Grappler (\$99) have drivers that let you print to more than 900 or more than 1,000 different PC printers, respectively. A version for NetWare, PowerPrint/NW (\$499 for 50 users), adds a spooler and supports printer options such as tray selection and color. It also gives Mac users LaserWriter-like features, such as paper-size selection and page flipping.

Not surprisingly, PC users also want LaserWriter-like features, and vendors are starting to oblige. The NetPortExpress XL is one of the first products to support DMI (Desktop Management Interface), a standard developed by Intel, Hewlett-Packard, Microsoft, IBM, and other major PC vendors to provide detailed information on what software is installed and running on a network device. Sound familiar? It should. The Mac already provides this type of information to network-management applications such as Technology Works' GraceLAN. DMI lets PC printers inform users of paper jams, empty paper trays, and printers that have gone off-line, warnings AppleTalk PostScript printers have been providing for a long time.

At press time, DMI was strictly a standard for Intel/Microsoft platforms and had not yet received backing from Mac and UNIX

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CIRCLE 52 ON READER SERVICE CARD

vendors. But even if DMI did support Macs, the only people it would really help would be network administrators who use PCs to do some of the things Mac network managers can do now. The advantage is that PC network managers would be less likely to complain when Macs were added to corporate networks.

Another technology that doesn't do much for Mac users but gives new features to PC users is Dataproducts' VPT (Virtual Printer Technology). VPT, which is built in to some Dataproducts printers, tries to solve the PC problem of widely varying printer setups.

VPT allows a single printer to use multiple protocols and setups simultaneously.

THE VIRTUAL-PRINTER CONCEPT is kind of goofy for Mac users — imagine different printer settings showing up in the Chooser as different printers. Fact is, Mac users don't really need Virtual Printer Technology.

Each setup is called a *virtual printer*, and users see each one as a different printer on the network. VPT allows as many as 64 virtual printers for each actual printer.

A virtual printer can be set up for different users or applications, which in the PC world often require special printer drivers. For instance, one virtual printer could handle PostScript files, one could handle HP PCL files, another might use a certain paper tray, and a fourth could print at a particular dots-per-inch setting. Different virtual printers could communicate simultaneously with computers on the network that are using one of four network protocols: AppleTalk, IPX, TCP/IP, or DECnet LAT. All four protocols could run at once through the actual printer's single Ethernet connection.

Unlike DMI, VPT supports UNIX machines and Macs, as well as PCs. Even so, the virtual-printer concept is kind of goofy for Mac users — imagine different printer settings showing up in the Chooser as different printers.

Fact is, Mac users don't really need VPT. For the most part, Mac applications can all use the same printer driver and can access most of the advanced features of a printer,

such as PostScript support. (VPT supports PostScript Levels 1 and 2, both of which use very robust printer drivers, providing the user with a lot of output control.) VPT is valuable to Mac users only in that it lets them share the same printer with a variety of computers on various networks.

Is PC printer technology overtaking that of Mac-specific printers? Absolutely not.

Featurewise, Macintosh printing is still ahead, and it's moving even further ahead with PostScript Level 2 and QuickDraw GX. But true multiplatform printing is good for all of us — Mac users and PC users alike.

MacUser technical editor John Rizzo is the author of *How Macs Work* and *MacUser Guide to Connectivity* (Ziff-Davis Press).



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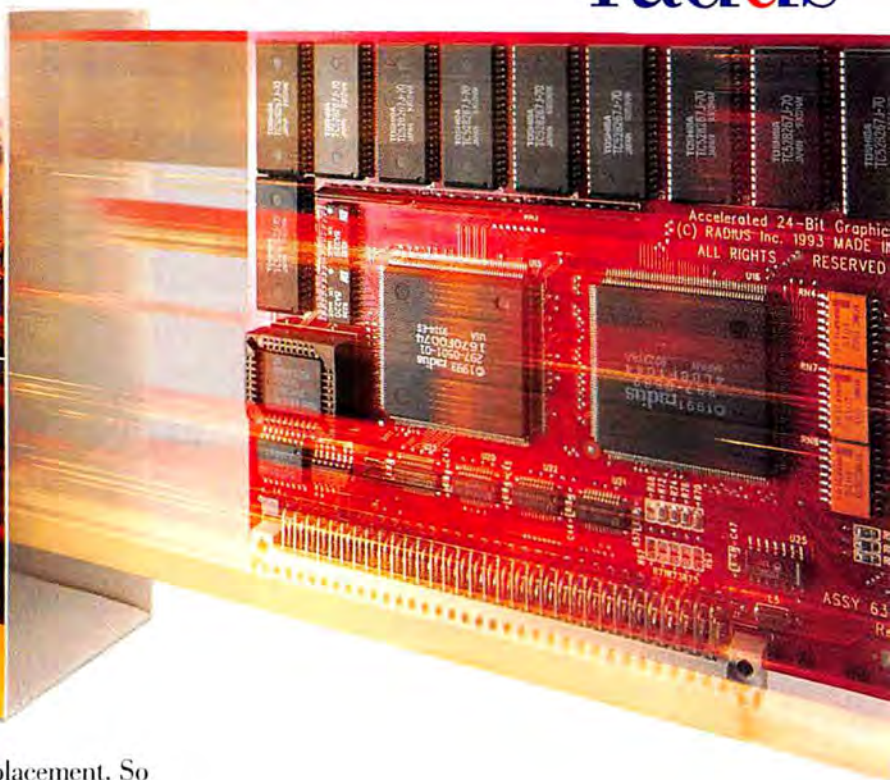
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FLOPTICAL DRIVES

FLOPTICAL DRIVES, which use 21-megabyte disks that have the same dimensions as conventional floppy disks, have been hanging around the data-storage fringe for a couple of years, looking for something useful to do. Now Iomega has developed a Floptical drive specifically for PowerBooks. The combination is interesting but has some limitations.

Iomega's PowerBook Floptical Drive looks like an external PowerBook floppy-disk drive, and in fact, it can read from and write to ordinary 1.2-megabyte floppy disks as well as to 21-megabyte (well, more like 19 megabytes after formatting) Floptical disks. One obvious group of potential beneficiaries are traveling PowerBook Duo and PowerBook 100 users, who might normally pack a floppy-disk drive in their luggage. Substituting a PowerBook Floptical Drive would enable them to take advantage of the greater capacity of Floptical disks but would still let them read many conventional types of magnetic floppy disks. Unfortunately, however, the drive can't read 800K floppy disks at all.



A few other catches: The PowerBook Floptical Drive uses a pass-through cable to run off the same AC adapter that powers most PowerBooks. PowerBook Duo and color-PowerBook owners, however, must carry a *second* power adapter for the drive. And you can't run the drive off the PowerBook's battery either. So, if you need to spin up a Floptical disk in-flight, you'll have to connect a separate PowerBook battery to the drive (Iomega supplies a small adapter that makes this possible).

That said, the PowerBook Floptical Drive offers the technical elegance of a standard Floptical drive in a compact package. And being able to back up your PowerBook to Floptical disks while you're on the road sure beats carting around stacks of floppy disks.

With compression, you could back up an 80-megabyte hard disk to just three Floptical disks. The speed of a Floptical Drive is just slightly slower than that of a magnetic drive and quite a bit faster than that of a conventional floppy drive. The Floptical disks themselves cost approximately \$10 apiece, or 50 cents per megabyte.

For now, the PowerBook Floptical Drive is available only through *The Apple Catalog*, for \$399. To get a catalog, call 800-795-1000.

For PowerBook users who require a little more elbowroom for their removable storage (and aren't concerned about floppy-disk compatibility), Pinnacle Micro makes a 3.5-inch portable magneto-optical drive, the Tahoe-130 (\$999), which can be run from a rechargeable nickel-cadmium battery pack. Drive cartridges hold 128 megabytes and cost \$69 each, which means the Tahoe-130 is probably a better choice than a PowerBook Floptical Drive for desktop-publishing PowerBookers, who have to wrestle with megahuge files and are more likely to have a power-hungry color machine. 800-553-7070 or 714-727-3300. / James Bradbury

THERMAL EXPRESS / PORTABLE PRINTING

NEED TO PRINT ON THE ROAD? Your options keep increasing as new portable printers hit the street. The latest we've seen is Citizen America's Citizen Notebook Printer II, a 2.6-pound thermal-fusion printer capable of printing as many as two monochrome pages per minute at 360 x 360 dpi. Although this isn't a printer you'd want to spend a lot of time printing color pages on, the Citizen Notebook Printer II *can* print CMYK in a single pass

(for the occasional emergency overhead transparency) if you switch to a color ribbon. The printer costs \$399; additional battery packs cost \$69,

and an optional adapter for your car lighter is \$49.310-453-0614. / James Bradbury



GET THE GRAY OUT / NEW TRACKBALLS

One cool thing about PowerBooks is the proliferation of goofy add-ons. In the trackball department, for instance, APS Technologies (800-926-0390 or 816-483-1600) created PowerBalls — colorful replacements for the PowerBook's standard-issue gray ball. The PowerBall costs \$9.99, and it's available for every PowerBook model. Now, CompAesthetics (800-425-2200 or 516-623-5886) has gone APS one better, by marketing AtmoSpheres. These are "artistic" replacement balls for the 140 through 180 series. A three-pack costs \$19.95. If only we could harness that same creativity toward building a better battery . . . / James Bradbury



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CIRCLE 142 ON READER SERVICE CARD

Sync or Swim



Synchronizing files between your desktop Mac and PowerBook can be a chore. Especially when you forget about all those little background files that need syncing too. BY SHARON ZARDETTO AKER

I ONCE READ AN INTERVIEW in which a rich and famous person whined about the difficulties of bicoastal living, such as wanting a favorite pair of shoes or a specific outfit that, no matter where she was, happened to be at the other house. I remember thinking that someone who could afford that lifestyle shouldn't be allowed to whine about such trivial matters. And now here we are, enjoying the luxury of owning two Macs — one on our desks, the other on our laps — but are we satisfied? No, because we've discovered what it's like to have left the one item we really need at the other location.

That Syncing Feeling

Synchronizing files can become a major pastime for PowerBook owners. If you transfer a document from your desktop Mac to your PowerBook and then back to your desktop Mac, you have to make sure the file that's bouncing back and forth between Macs is always the most recent one. If someone else makes changes to the version on your desktop Mac while you're away — or if you work at the desktop Mac after you've copied the document to the PowerBook —

you can end up with two updated — but different — versions of the file. This is the main concern with file syncing, one to which there's no satisfactory solution. Even if you know that both files have been altered, what good does it do you? If one version of a file has a passage that the other one doesn't have, how do you know if the passage has erroneously been left in the one file or accidentally deleted from the other? And how do you combine the documents?

If you're working with word-processor files, you can use a word-processor-specific syncing utility, such as Advanced Software's DocuComp, to combine different versions of a document. With other types of applications, your choices are limited. You can use a file-syncing utility, such as MBS Technologies' FileRunner or Leader Technologies' PowerMerge, to tell you if a file has been altered. But a utility can be effective only if you take certain precautions up front. Here are a few things to keep in mind, whether you're using a syncing utility or going it alone.



Know What Day It Is

The one crucial thing when syncing items on two Macs is the date on which the items were modified. The Finder stamps files (and folders) with modified dates and times — which should make syncing easy, right? Sure, but only if you pay attention to other, less obvious things that affect the modified date of the items on your desktop. Here are some guidelines:

- Check that the date *and* the time are set correctly on all your Macs. For instance, when a PowerBook is taken apart for a repair or an upgrade, the main battery is removed — and the backup battery doesn't keep the

POWERBOOK SECRETS / cycles and recycles

IF YOUR BATTERY DOESN'T LAST AS LONG AS IT USED TO, no matter *what* you do to conserve power, it may be approaching the end of its useful life.

A rechargeable battery isn't rechargeable indefinitely: It's rated for a certain number of *cycles*, or recharges, after which it can't hold a charge as well as it did previously.

Batteries in many of the original PowerBooks are now two years old — more than old enough to have reached and surpassed the expected 500 cycles for a well-treated battery. I find the battery-tracking capabilities in Inline Software's PBTools invaluable for checking the discharge rate of any PowerBook battery: A steep discharge curve where there used to be a gradual one is a giveaway that you have a dying battery.

You shouldn't blame your nickel cadmium battery's short charge time on age unless you've tried to *recondition* the battery. This means using a



You can condition and recharge your PowerBook 140 to 180's battery with Lind's tiny In-Place Conditioning Unit.

battery recharger with a deep-discharge cycle, or a PowerBook utility that discharges the battery down to the required 1 volt per cell. After you have done the deep discharge, fully recharge the battery. If the full recharge doesn't give you a normal running time, repeat the discharge/recharge cycle several times before admitting defeat.

Once your battery does die of old age, don't throw it away. Return it to your dealer for recycling, or ship it back to Apple in the box your new battery comes in — you'll find a mailing label right in the package. / Richard Wolfson

Help!

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clock setting. If you don't reset the time and date before you start working, your most recent files may be dated 1904. If you travel across time zones and change the PowerBook's clock to match your location, you have to be careful to avoid problems when you're syncing files with their counterparts on your home Mac. When you save, the most recent version of the file might be dated an hour or two earlier than the original. If you forget this, you may get back to your home Mac and replace the current version with an older one.

- If you don't plan to alter a file, you can keep its modified date from changing by locking it in the Get Info box. Some files get a new time-and-date stamp every time you open them. Open a FileMaker document, for instance, and close it without altering its contents. You'll find that the file's modified date has changed to reflect the time you last closed the file.

- Don't trust the modified date of a folder. Always check the files inside it. If you save a new file into a folder, the folder's modified date changes accordingly. But if you alter one of the folder's existing files, the folder isn't considered modified at all, even though it's holding a recently modified file. To make things even more interesting, some applications create and then erase temporary files while you're working; a folder's time and date are modified both when the files are created and when they are erased, even if the contents of the folder are exactly the same when you start and when you finish.

- Get into the habit of closing and reopening those windows often if they contain files that are going to be synced. If you change and save a file, its date will not change as long as its window is open: Force an update by closing and then reopening the window.

Don't Forget These Files

Most people work with all sorts of peripheral files, but because those files are not actually documents created and saved in the standard way, it's easy to forget about them. They're like background noise — you don't notice it until it stops. For instance:

Custom dictionaries. If you're constantly adding words and phrases to the custom files of both Macs, file syncing will simplify the process. In addition to syncing Microsoft Word's glossary and custom dictionary, I regularly sync my custom glossary in

Baseline's Thunder 7 spelling checker, which has an expansion feature that lets me type shorthand — automatically turning *pb* into *PowerBook*, for instance.

Macros. Ever try to run a macro on one Mac that exists only on your other Mac? You should consider updating macro files regularly. As with custom dictionaries, making new entries to either Mac on an as-needed basis might work, but if you are a macro-maniac, transferring the macro files from one Mac to the other makes more sense. Remember, there are several issues to consider before transferring macros — most important, the PowerBook's lack of function keys.

DA files. Paste something into the Scrapbook on your desktop Mac, and you won't find it in your PowerBook's Scrapbook. Elementary, but easy to forget. This problem recalls the days when the Mac was a floppy-based system and we used a variety of start-up disks dedicated to certain applications or tasks. You'd paste something into the Scrapbook and be unable to find it later, because that Scrapbook was on a different disk.

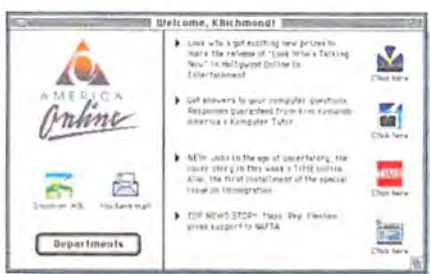
Whether you use a simple notepadlike DA to keep track of names and phone numbers (I use the free-form database Phone Pad in Fifth Generation's MacPak) or a full-fledged Rolodex-type system, don't forget to coordinate those files between your Macs.

Telecom files. How many times have you saved someone's address during an on-line session and then tried to retrieve it to send that person a note from your other Mac? Or saved an entire message or thread to review later but realized it was on the other Mac's drive when you were ready to read it? Be sure to update your office Mac with the latest messages or threads you received on your PowerBook during an on-the-road on-line session.

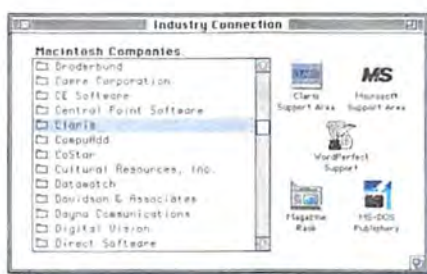
This may all sound like a headache, but once you've developed the right habits, file syncing can be relatively painless. The main things to remember are to keep the number of copies of any document to a minimum, mark each version and its changes clearly, set your system dates correctly, and limit access to your Macs. ☐

Sharon Zardetto Aker reached the pinnacle of success when her book *The Macintosh Companion* was an answer on the TV game show *Jeopardy*.

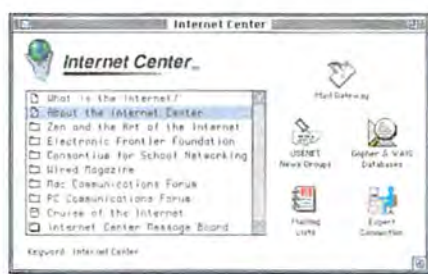
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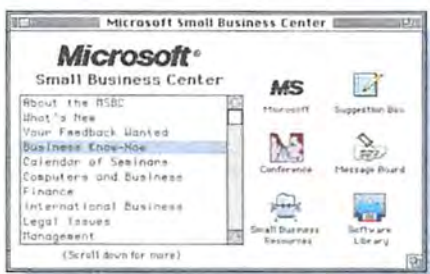
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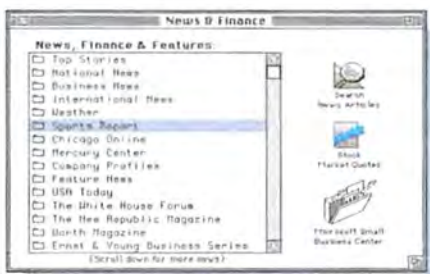
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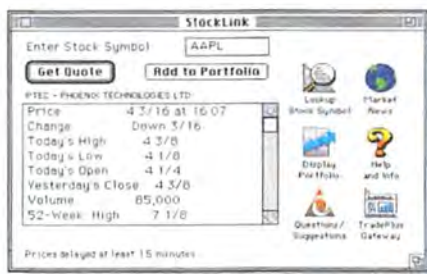
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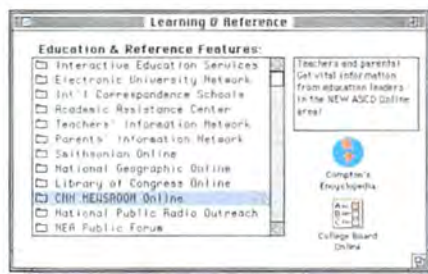
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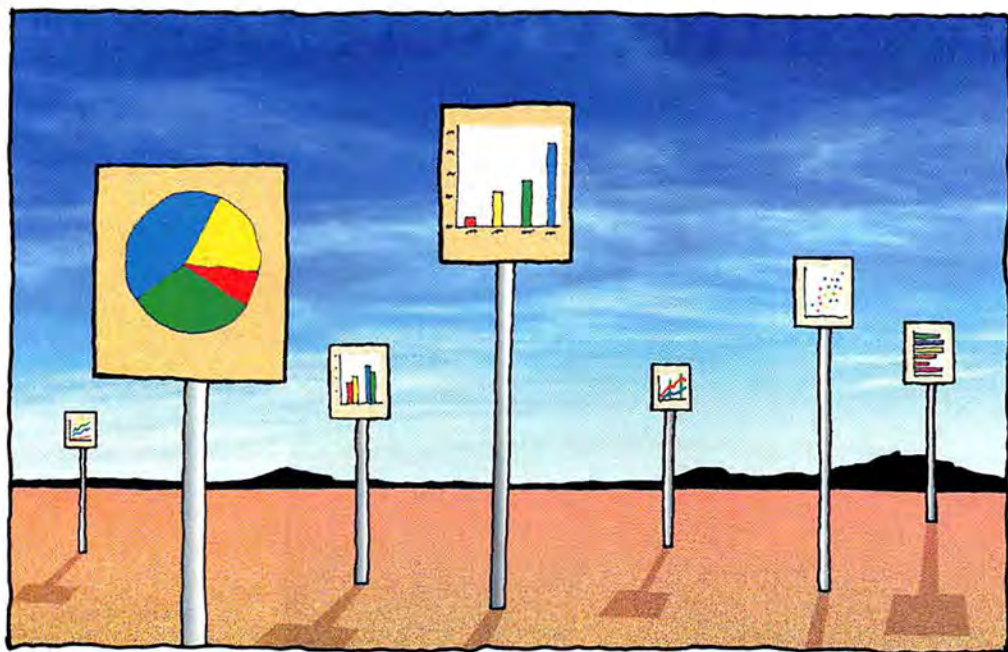
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Excel lets you render pie charts in several ways — for instance, you can pull out individual wedges, turn the chart into a 3-D image, or explode certain categories to emphasize an idea (see figure 1). To explain the pros and cons of advertising on television, for example, you can use a pie chart that explains how a company divides its advertising budget among TV, newspaper, magazine, and billboard ads. Because the focus of your report is TV, you'll probably want to explode the TV category, thereby giving it greater emphasis.

In general, Excel's 3-D pie charts tend to look better than flat pie charts. But as with all rules, there is an exception: If your chart contains a lot of categories, especially ones representing very small percentages, you'll be better off using a 2-D chart. If you use a 3-D pie chart instead, the smaller slices will be difficult to see.

The Right Excel Chart

DESIGNING CHARTS that make for an effective presentation takes practice. Here are some tips for making better ones. **BY JASON SNELL**

One of the things that has made Microsoft Excel such a powerful business tool is its ability to turn arcane numerical data into colorful, easy-to-understand charts. If used creatively, a charting program can take your monthly sales figures, statistical data, or financial projections and convert them into a compelling graphical presentation. If you don't follow some fundamental rules, however, charting can just as easily work against you. A bad attempt to make your data easy to digest by adding colors, lines, patterns, arrows, or tables can confuse your audience — or even worse, it can give them the *wrong* information.

Ideally, someone who is not familiar with your subject should be able to read your chart and instantly grasp its meaning with little explanation. Assuming that you've mastered chart creation (you are going to have to read the manual for that), here are some hints to help you choose the right chart. (For even more options, see the "Four Tips" sidebar.)

Showing Percentages

The most recognizable chart type is the pie chart, which is most often used to impart information about percentages — it's easy to make the connection between the pieces of a pie and the parts of a whole.

Showing Periodic Change

Two of the most widely used chart types are bar and column charts, which are used both to show trends over time and to compare different items. You can think of bar and column charts as the Swiss-army knife of charting — they work well for all sorts of jobs.

Bar and column charts are the best choice if you're displaying information gathered over regular intervals. For example, if profits are tallied every month, you can give each month its own bar. This is the chart type most companies use to display their profits over time.

If your information has several data points but you want to focus on the total, consider using instead a *stacked*-bar or -column chart. Such charts allow you to highlight totals (for instance, total company sales from your four branch offices) and

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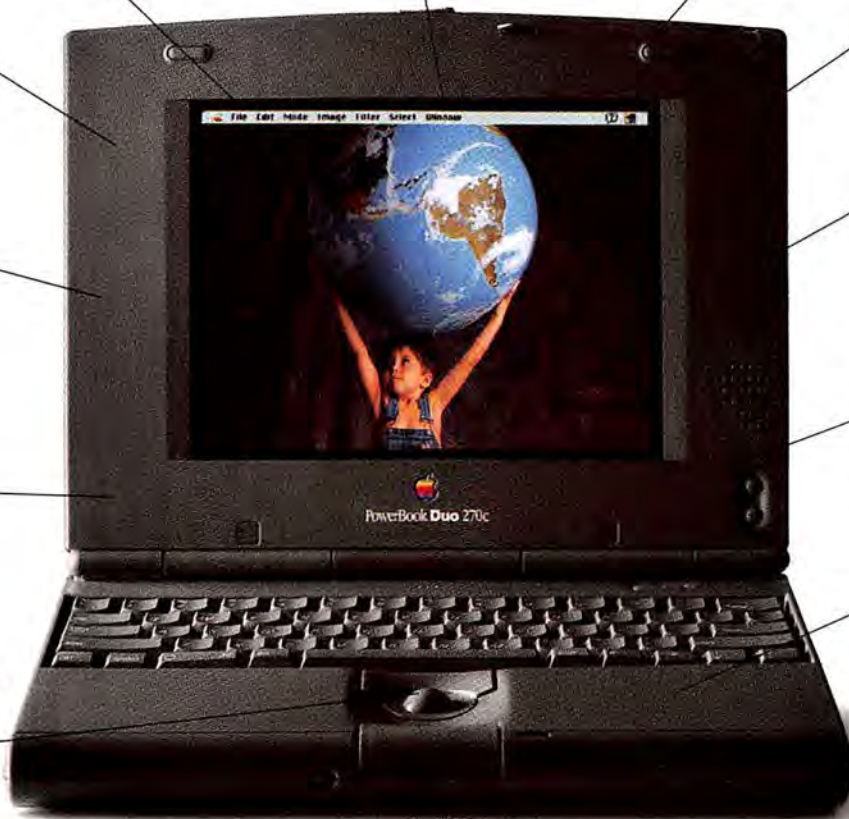
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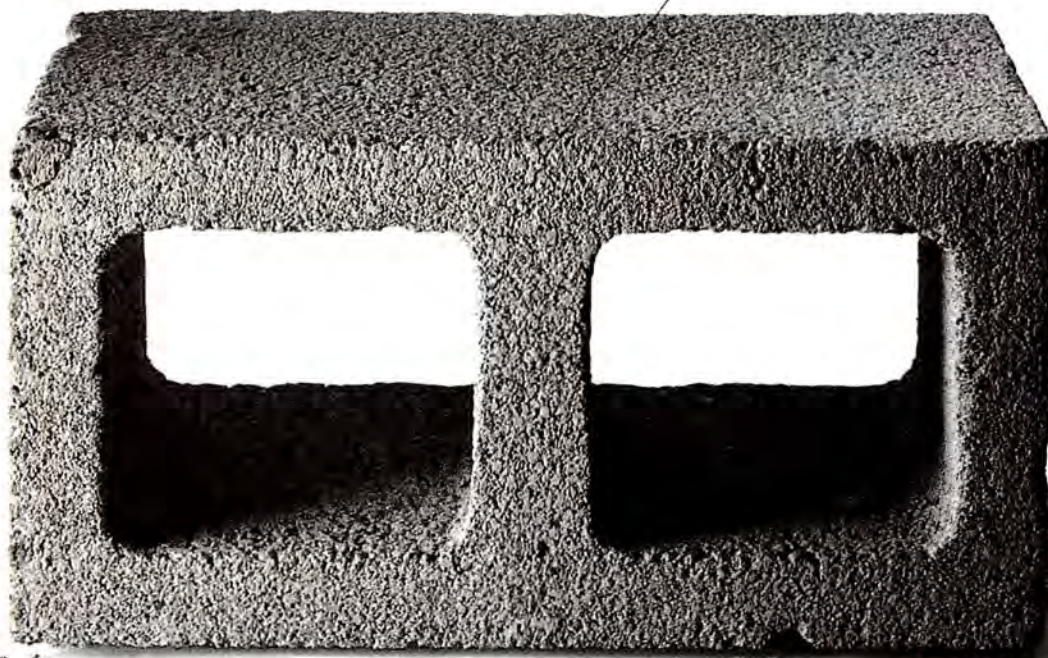


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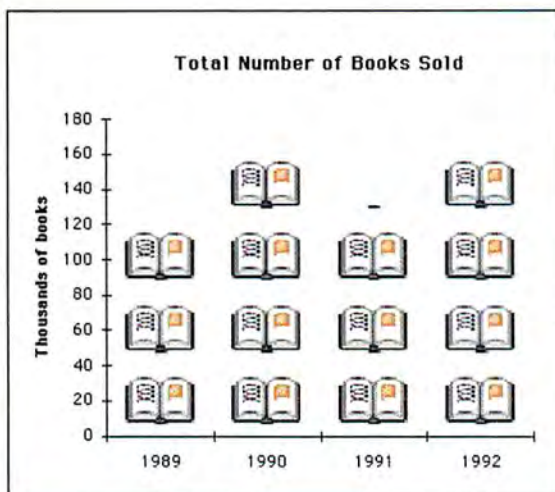
FOUR TIPS / for more-powerful charts

Add Pictures. Excel lets you import graphics into your charts. If your chart shows annual book sales, for example, you can use a clip-art picture of a book to construct a bar or column by following these steps:

1. Copy the picture to your Clipboard.

2. Open your Excel chart (double-click on the chart if it's inside a worksheet), and click on whatever column or series of columns you want to be replaced by your graphic.

3. Select Paste, on the File menu, and your graphic will fill the space of the column.



You can liven up your charts by importing graphics that suit the topic.

By double-clicking on the column, you can

access other formatting options: You can stretch the graphic to equal the length of the column, or you can copy your graphic and stack the copies until they fill the space.

Customize Your Charts. If after some experimentation you find Excel's chart-color and graphics options too limiting, you can select your chart, copy it, and paste it into a draw program such as MacDraw Pro. The chart will be pasted ungrouped, so you will be able to manipulate each element — bar, column, slice, or text — separately. This approach lets you take advantage of the drawing and color features built in to draw programs.

Turn Any Data into a Chart. If the data points you want to plot are not next to each other on a spreadsheet, you can still use them to make your chart. Select your first set of data by clicking your mouse and dragging. Then hold down the Command key and click-and-drag over other sets of information you want to chart.

To make the chart, open a new chart file or click on the Chart Wizard button on the right side of the Excel tool bar.

Create Better 3-D Area Charts. If you're using a 3-D area chart, make sure the data is plotted in the correct order — so your large data series don't eclipse the small data ones. Here's how:

Select Edit Series from the Chart menu. The Series dialog box will appear. When you select a series, a number will appear in the Plot Order box. The lower this number is, the closer it is to the front of the chart — in a three-series graph, plot-order 1 is in the front, plot-order 2 in the middle, and plot-order 3 at the back.

If your largest data point appears in plot-order 1, it will eclipse the other points. Check how many data points you have, and enter that number in the Plot Order box. When you close the dialog box, your series will be plotted in the viewing order you want.

Choosing the Right Excel Chart



figure 1a / **If you use a pie chart**, you can draw attention to one data point by exploding its slice, separating it from the other data points.

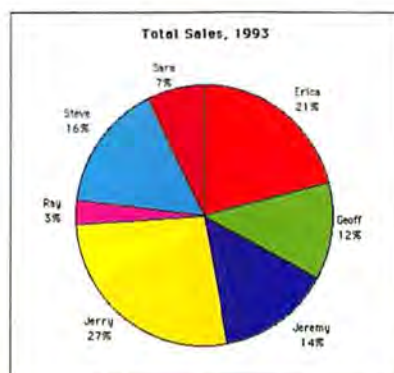


figure 1b / **Use flat pie charts** when you're plotting smaller categories, which may be eclipsed in a 3-D pie chart.

still display information about the categories that make up the total (the sales of each branch office).

Illustrating Trends

If you're charting something such as monthly profits, use column charts rather than line charts. The problem with line charts is that they suggest that a change occurs at every point in the line. Because profits are measured as monthly (or even yearly) totals, by their very nature, they can't be measured any more often than once a month. So they should be charted with bars and columns, not lines.

On the other hand, a line chart (or its first cousin, the area chart) is the perfect tool for illustrating a trend — that is, the general impression of how something is changing over time. But you should be careful when using these chart types, because you give up accuracy for the sake of smooth lines.

3-D Area Charts

Three-dimensional area charts, which are most often used to show trends, can make for visually impressive graphics, but they're often tricky to use.

It's best to use 3-D area charts only when you have consistently widespread values among data points. For example, the chart in figure 2 makes sense because the *Jurassic Park* total weekly box-office revenues are almost always higher than those of *The Fugitive*, which are in turn higher than those of *Sleepless in Seattle*. If your data points are close in value (for example, the values for

The Firm would be quite similar to those for *The Fugitive*), one series on the chart will be lost because another one will rise in front of it, blocking it from view.

Combining Chart Styles

If you're comparing two completely different sets of data (how your company's sales figures and the price of shares of company stock vary by month, for example), Excel's combination chart is the perfect tool. It lets you use one chart to show how seemingly unrelated sets of data are related.

For example, using option 2 of Excel's combination-chart dialog box (which appears when you select the Combination submenu, on the Gallery menu), you can combine a bar chart with a line chart (see figure 3). That way, you can clearly show how monthly sales and fluctuation in the stock prices are linked, even though the two values (hundreds of thousands of dollars in sales and a few dollars per share) are quite different.

Before You Chart

Before you begin designing your chart, you should sit down and ask yourself what information you're trying to get across. Ultimately, that's your goal — not only to make the chart aesthetically pleasing but also to make one that will make sense to your audience, quickly and easily. Be sure to label your chart's axes, so your audience will know what the pictures on your chart really represent. Also include a legend to make sure they know which colors or patterns represent which data sets.

The key to designing an effective chart is to keep things as simple as possible. If you don't need a complicated chart to explain your data, don't use one. Excel gives you plenty of options when creating charts, but use them sparingly. Don't, for example, use a complicated 3-D chart if you're graphing only a simple data set that would look just fine as a plain old bar graph. Although Excel gives you the option of adding arrows and labels to your chart, you should resist this temptation unless it's absolutely necessary. A caption beneath your chart — or a verbal explanation, if the chart is part of a live presentation — will accomplish the job just as well and won't clutter up your charts in the process.

Keeping these ideas in mind, you'll be able to use Excel's charting ability as a powerful business tool.

Jason Snell is a graduate journalism student at UC Berkeley and the editor of the on-line magazine InterText.

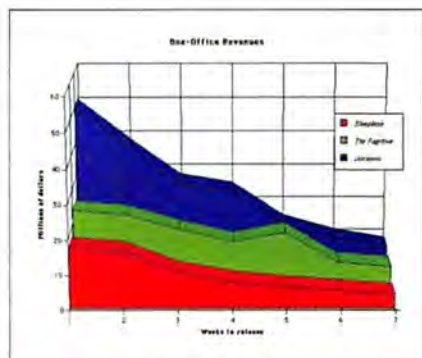


figure 2 / **If you're using a 3-D area chart**, make sure your values are consistently widespread so one data point won't overshadow another.



figure 3 / **Using a combination chart**, you can show the relationship between two sets of data — for example, how a company's monthly sales results affect its stock price.

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Tip Sheet

Shrink the size of your Microsoft Word files, play Tetris like a champion, and make PowerBook batteries last longer. BY PHILIP RUSSELL

MAKING A DROP CAP in Word 5.1 is simple. Open your document, place your cursor anywhere in the paragraph to which you want to add the drop cap (the paragraph shouldn't have an indent), and select Drop Cap from the Insert menu or from the tool bar. Make sure the paragraph is just the way you want it before you place a drop cap — making changes to the paragraph afterward will be difficult.

PLAY TETRIS on an advanced playing level by adjusting settings in the Keyboard control panel. Set Key Repeat Rate to Fast, and set Delay Until Repeat to Short. Now when you play Tetris, you can make the falling objects shift to the left and right more quickly than


before. Watch out, because the drop key will make items plummet much faster. At the end of the game, remember to go back into the Keyboard control panel and restore your normal settings, or those adjusted settings will affect every program you use.

CONSERVE YOUR POWERBOOK BATTERY by storing Microsoft Word 4 in RAM rather than on the hard disk (you can't do this with Word 5). Storing Word in RAM makes your battery last longer, because your PowerBook doesn't have to access the hard disk as often. To store Word in RAM, select Preferences from the Tools menu and check the Now box next to Keep File in Memory or Keep Program in Memory. Click on the Always button if you want the program or file to be put into RAM each time you open Word 4.

IF YOU'RE RUNNING out of space on your hard disk, you can cut down the size of your Microsoft Word files by disabling Word's Fast Save feature. In Word 4, go to Commands, on the Edit menu. Select Fast Save Enabled from the list of commands, and click on the Add button to add it to the Edit menu. Now you'll see Fast Save Enabled with a check mark by it on that menu. Select Fast Save Enabled to disable it, and the check mark will disappear. (In Word 5, Fast Save is

in Preferences under Open and Save, on the Tools menu.) The next time you save a document, Word will make a new file that overwrites the existing one rather than adds changes to it. It's similar to Save As but faster and more convenient.

WHAT'S THE BEST PAPER for inkjet printers, such as the DeskWriter and the StyleWriter? If the paper's surface is too hard, ink won't stick. If it's too soft, ink bleeds. If it's not sturdy enough, the paper wrinkles as it dries. Try using one of these brands of paper to avoid problems with inkjet printing: Neenah Classic Laid, Georgia Pacific Spectrum DP, Fox River Rising Bond 25-percent cotton, Simpson Recycled Bond, or Simpson Protocol 100-percent cotton. (Thanks, *MacValley Voice*, Burbank, CA, MUG.)

REAPPLYING AN ALIGNMENT for objects in MacDraw II or later versions is simple. Each time you use an alignment setting, such as Align Left or Right, on the Arrange menu, that setup becomes the default. The next time you want to apply the alignment you used most recently, select the objects you want to align and press Command-K. You don't have to waste time pulling down the Arrange menu and making changes in the Alignment window. 

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Wasson (725 11,36) on ZiffNet/Mac.

MacUser's on-line service. We pay \$25 for

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and the Tip of the Month earns \$100; see

page 4 for more details.

READER TIPS / compiled by Gregory Wasson

ClarisWorks 2.0

When I converted some black-and-white clip art from MacPaint to ClarisWorks 2.0, my original 9K file expanded to 411K. This is because when ClarisWorks converts black-and-white MacPaint files into its format, it reserves space for 256 colors in the new document, even if the converted clip art is black-and-white. To eliminate the colors and save tons of room, select the Resolution and Depth option from the Format menu and click on Black & White. This process shrank my 411K file to 54K — still larger than the original, but a definite improvement. You can also shrink your graphics by using the ClarisWorks Paint module to decrease the number of colors available.

Joseph A. Bell
College Station, TX

FindPro III

If your System file is corrupted and you can't open the System Folder to rescue important items, try this, using FindPro III (or any similar utility): Install the FindPro III utility (filename FINDPR.SIT in Library 1 of ZiffNet/Mac's Download & Support Forum). Open FindPro III, find the items you want to rescue, select them, and use the Move to Desktop command to pull them out of the System Folder.

Jan Pieter Kunst
Amsterdam, The Netherlands

Panorama 2.1

When you're importing a tab- or comma-delimited text file into ProVue's Panorama 2.1, you can add field titles by following these steps:

Make the first record of the text file the titles of the fields. (If you're creating the text file from scratch, be sure to place delimiters between the field titles.) After importing the text file into Panorama and confirming that the first record is the titles of all the fields, select the first field of the first record and cut it. Double-click on the top of the field column (Title A), and paste to place the field title in Panorama. Repeat this process with all the fields, and then delete the first record.

You now have all the proper field titles in the proper places.

Dave Williams
Rowlett, TX

Publish-and-Subscribe

You can use the publish-and-subscribe feature of System 7 to print multiple sections of a Microsoft Excel 4.0 spreadsheet on a single Microsoft Word page for a report. To see a section of columns A through F printed above a section of columns H through J, for example, do this:

In the open Excel spreadsheet, select the section of columns A through F and choose Create Publisher from the Edit menu. When the dialog box appears, name the file and save it. Repeat the process for the section of columns H through J. Then open your Word document and choose Subscribe To from the Edit menu. When the dialog box appears, simply select the published files and place them in your document.

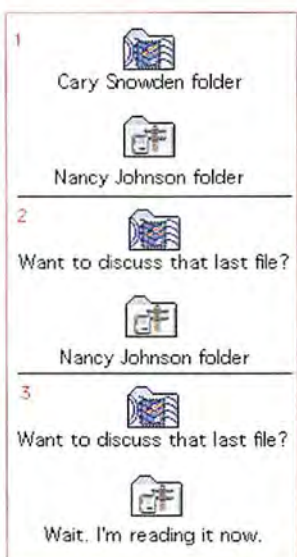
Jack Sand
Marlton, NJ

TIP OF THE MONTH

Apple Remote Access

Here's a simple way to converse with someone who's connected to your Macintosh via Apple Remote Access if you're limited to a single phone line. Instead of hanging up your modems to call each other between file transfers, you can send messages by typing them into the titles of folders on the desktop. Here's how to do it: First, create two folders on your desktop. Name them so you can identify them. For instance, put your name on one folder and the other person's name on the other. This establishes who uses which folder to type messages. Pasting new icons onto your folders is another way to make them easy to distinguish. Then, in order to converse, you simply rename your folder with your message and press the Return key. Remember that you are limited to 31 characters per note.

Cary Snowden
via ZiffNet/Mac



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CIRCLE 55 ON READER SERVICE CARD

Help Folder



Avoid printing disasters with mailing labels, discover new uses for the Newton, and find out what frogs and gymnasts have in common with the fonts on your Mac. BY ANDY IHNATKO AND BOB LEVITUS

Installing Hard Drives

Q. Can I rip a SyQuest mechanism out of its external case and install it in a Quadra?

Peter R. Wagner
River Vale, NJ

BOB: Yes. All you need is an inexpensive (about \$30) mounting-bracket kit from just about any hard-drive vendor. (Thumb through ads in computer magazines to find one.) The kits include a faceplate, a mounting bracket, and installation instructions. No terminator is necessary.

ANDY: Once you have the kit, installing the SyQuest mechanism is easy. Plug in three cables and tighten some mounting screws, and you're done. Be sure to ground yourself by touching the computer's power-supply case or wear an antistatic wristband while you're installing the mechanism. Otherwise you may blow out circuits in the mechanism or Mac. Touching the power-supply case to ground yourself works only if the Mac is plugged in.

Laser Labels

Q. While I was loading my LaserWriter with standard mailing labels, my fiancée exclaimed, "Those labels can ruin that printer, you sap!" She's a wonderful woman who doesn't normally call me names, but tell me she's wrong and help me save face.

Christopher J. Mulvihill
Camp Hill, PA

Write to Help Folder

c/o MacUser
950 Tower Lane
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Foster City, CA 94404

Don't want to wait for an answer? Post your question on ZiffNet/Mac, MacUser's on-line service, and get a reply from Bob (76004, 2076), Andy (72511, 204), or one of the other MacUser experts.

BOB: Listen to your fiancée — she's right. Using the wrong type of labels can be disastrous. A printer's high temperatures and convoluted paper paths can melt or unstick standard labels inside the printer. Use only labels in boxes that say "Laser-Printer Labels" in giant letters.

ANDY: If our advice comes too late and labels are already jammed inside your printer, apply some butane to the printer's gummed plate in a room with good ventilation. To be really safe, take the printer outside to clean it and don't use a drop more butane than you need. Peel off the paper, and use a damp rag to wipe off the rest of the gunk.

A laser printer's paper path is full of U-bends perfect for destroying labels and causing mayhem. Try setting up your printer to have the straightest possible paper path. Check your printer's manual for details.

Mac Plus and CD-ROM

Q. Using a CD-ROM drive with a Mac Plus, will I be able to run the multimedia CD-ROMs containing Beethoven's, Mozart's, Stravinsky's, and other classical musicians' works?

Ernesto J. Mata
Miami, FL

BOB: If all you care about is classical-music titles, your Plus will do. Most of the classical-music CD-ROMs, such as those from Time-Warner Interactive Group and The Voyager Company, can run on your Plus in black-and-white, as can Grolier's New Multimedia Encyclopedia. But if you plan to build a CD-ROM collection, you'll need a more powerful, color-capable Mac. Your Plus can't handle most of today's hottest titles — including Brøderbund's Living Books series; The Journeyman Project; Spaceship Warlock; Hell Cab; and Sherlock Holmes, Consulting Detective — which require a color monitor and a 68020 or faster processor.



THE BASICS

Q. The energy-saving feature on Apple's new Macs seems to work like a screen saver, in that it automatically dims the monitor's screen after a period of inactivity. Is this an indication that the monitor is the primary energy user? If I manually dim the screen on my monitor, will I save energy?

Terry Spivey
Lexington, KY

ANDY: Yes, you guessed it: The real energy hog in a system is the monitor. It typically consumes three to four times as much power as the computer itself. The Environmental Protection Agency's Energy Star program specifies that computers and peripherals should not draw more than 30 watts when idle. However, fiddling with the brightness and contrast knobs on your monitor does not affect how much juice it gobbles up. You have to have an Energy Star-compliant computer — such as a Quadra, Centris, or LC III — that can cut down the power to the picture tubes of certain monitors.

To take advantage of Energy Star energy savings, check your monitor's packaging for the Energy Star logo and if it's thusly marked, toss Apple's Energy Saver control panel into your System Folder. Many Apple printers can also be thrown into low-power mode. Check your manual for details.

If you don't have Energy Star-compliant hardware, just switch off the monitor if you're not going to be using it for half an hour or more. Or you can spend \$99 on CDU (Connectix Desktop Utilities), from Connectix (800-950-5880 or 415-571-5100). It comes with a module that dims your screen or shuts down the monitor's power after set periods of inactivity. To use it, you need a Mac SE or later and System 7.

Check out the October '93 report on CD-ROM drives, for tips on buying the right drive ("Double-Time CD-ROM Drives," page 110), and the November '93 roundup of CD-ROM titles ("The Top 50 CD-ROMs," page 90).

ANDY: Bob's right — about 99 percent of all multimedia CD-ROMs require a color Mac, but in my humble opinion, that's the least interesting segment of the CD-ROM market. You can get 700 megabytes of shareware, source code, and information files on one disc for \$50! How can that *not* get you all hot and bothered? This type of CD-ROM runs just fine on a Plus as long as you have at least 2 megabytes of RAM.

Best Font Forward

Q. Fiddling with the Finder in ResEdit, I came across the following resource string (which reminds me of a Johnny Carson Carnak question): "How razorback-jumping frogs can level six piqued gymnasts!" When is this little gem supposed to pop up?

Thomas M. Scarnati
via ZiffNet/Mac

ANDY: The sentence that piqued your curiosity is used for displaying font samples. You can see how fonts look from the Finder level of your Mac rather than having to open a

document and type them in. Apple chose this sentence because it contains every letter of the alphabet. To see it in action, open your System Folder and double-click on any installed TrueType or bit-mapped font. The Finder will display a sample of that font, using the lengthy sentence about frogs (see figure 1).

Apple could have used "Pack my box with five dozen liquor jugs" or "Jackdaws love my big sphinx of quartz," the latter being the shortest sentence I know of that contains the entire alphabet and doesn't break any grammatical rules.

Newton Horizons

Q. Can my Newton MessagePad use any standard expansion card (extra memory or a modem card) or just the ones made by Apple? One more question: If this is your first Newton question, will I win anything?

Ken Steinberg
via the Internet

ANDY: Sorry, Ken. We had a 1994 Chrysler New Yorker waiting for the person who asked the right question: "Andy, may I buy you a Newton?" What a pity you chose the wrong one.

Using exotic cards, such as hard-drive and wireless-communicator cards, with

your MessagePad is out of the question, unless Apple makes them. Memory and modem cards, on the other hand, are well within the bounds of reality. Almost all PCMCIA (Personal Computer Memory Card International Association) memory cards work with the MessagePad, provided their capacity is 4 megabytes or less.

Fax-modem cards are another story. The MessagePad is supposed to work with any modem based on the Rockwell 224ATF chip set. However, at this writing, I know of only one make and model besides the Newton Fax Modem Card from Apple that works 100 percent of the time: the XJ1144 v.32bis fax modem (\$399), from Megahertz (801-272-6000). No matter which card you get, you won't be able to receive faxes, because of the MessagePad's software limitations.

Call Apple's Assistance Center (800-767-2775, in the U.S. only) for a list of PCMCIA cards that work with the MessagePad.

Share Where?

Q. "The 1993 MacUser Shareware Awards," in the October '93 issue (page 143), mentioned some shareware I'm very interested in. How can I get it if I don't subscribe to any on-line services?

Rosalinda Melena Toler
Memphis, TN

BOB: I heartily recommend buying a modem and joining on-line services if you're interested in shareware. It's never been easier or less expensive than it is now.

In the meantime, there are several other sources for shareware. The Amish Outlaw (800-947-4346 or 718-317-0198) and Educorp (800-843-9497 or 619-536-9999) can supply you with shareware for a fee. Another place to check is your local user group. Most user groups maintain extensive shareware libraries and offer shareware on floppy disks at reasonable prices. Call Apple's user-group hot line (800-538-9696, ext. 500) to find user groups in your area.

Even if you've paid The Amish Outlaw, Educorp, or a user group for a shareware disk, do the right thing and pay the author for the shareware you continue to use.

ANDY: Back to Bob's original point: It's impossible to overemphasize the usefulness of a modem. You send someone less than \$100, and you get back a box that gives you access to millions of people and gigabytes of free or nearly free software.

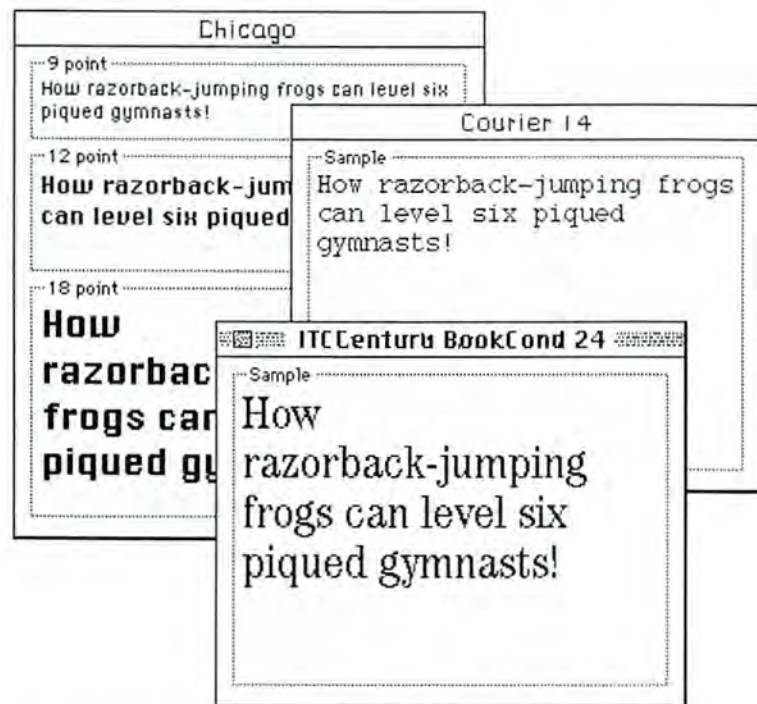


figure 1 / **You don't have to open a document** to be able to see how fonts look. You can view them at the Finder level by double-clicking on any font in your System Folder.

Limiting Chooser Choices

Q. Students are changing the user name in the Chooser dialog box and renaming hard disks on the college network I maintain. How can I combat their meddling?

John Dewsnap
Katikati, New Zealand

ANDY: The solutions range from free to terribly expensive. An operator's desk facing all the screens and a pair of cheap binoculars are dang near foolproof in preventing all sorts of mischief. Once sensation seekers begin to associate mischief with a pronounced drop in their ability to get print-outs and student IDs back, they'll surrender.

Another simple and free way to prevent folks from changing Chooser user names is to toss the tools they need into the Trash. If you're running System 7, remove the Sharing Setup control panel from all the Macs on the network. Under System 6, trash the Chooser itself. The drawback is that folks won't be able to do anything requiring these two little baubles.

If that solution's too drastic, get Maurice Volaski's freeware ChooserUser, a control panel that thwarts any attempt to change the

user name. It's available from on-line services and Mac user groups. You can find it on ZiffNet/Mac, *MacUser's* on-line service, in Library 3 of the Download & Support Forum, with the filename CHOOUS.SIT.

As for protecting the name of a local hard disk, your only simple solution is to use Maurice Volaski's LockBootVolName extension (ZiffNet/Mac filename LOCKBO.SIT), also in Library 3 of the Download & Support Forum. These two pieces of shareware protect you only from accidental and casual attempts to fiddle with names. As with all system extensions and control panels, deactivating them is a simple matter of holding down the Shift key at startup.

BOB: Although they're more expensive than what Andy suggests, several desktop-security packages do all he mentioned and more. Apple's slick At Ease 2.0 (\$59) not only lets you restrict access to the Finder, the Chooser, and the Sharing Setup control panel but it also lets you restrict access to control panels and applications on a user-by-user basis. The workgroup version lets you specify options for as many as 1,000 users.

Another package, Empower II (\$296),

from Magna (408-282-0900), should also do the trick; I haven't used it, so I can't guarantee its reliability, however. It prevents users from accessing certain applications, Apple-menu items, and control panels.

Alert Me Not

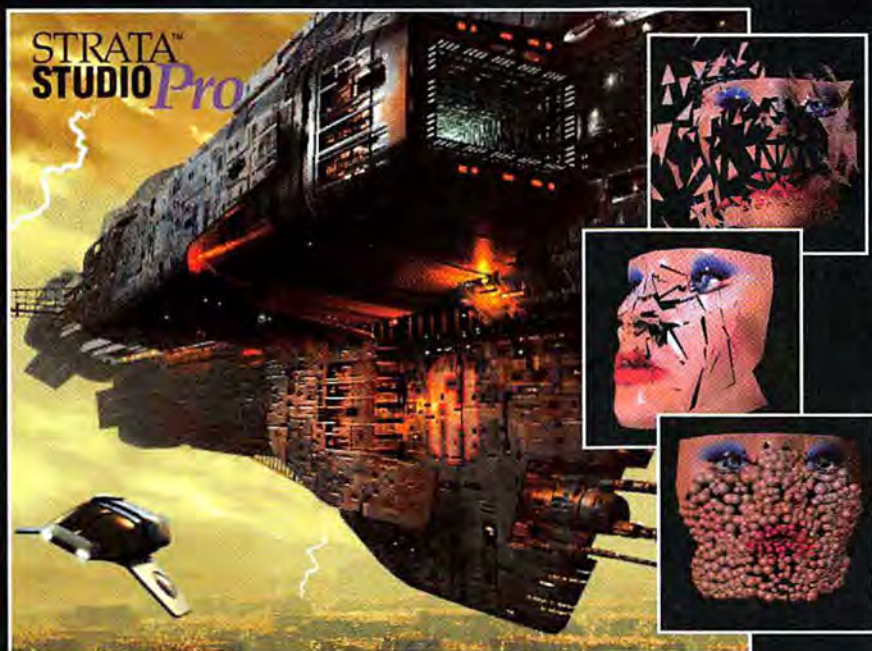
Q. Is a utility available for intercepting or autoanswering alert messages that want to take over your machine?

Felix Dalldorf
Danbury, CT

ANDY: Those alert messages can be a problem — for instance, you think a backup is well on its way, walk away from your machine for an hour, and come back to find an on-screen message asking you if you're sure you want to back up.

Dan Walkowski and Brent Pease's Okey-Dokey control panel can help. Toss it into your System Folder, and it'll automatically activate the default button, such as the OK button, in an alert box that pops up on-screen. It's freeware, available from on-line services and Mac user groups. For ZiffNet/Mac members, it's OKEYDO.SIT, in Library 3 of the Download & Support Forum. ☐

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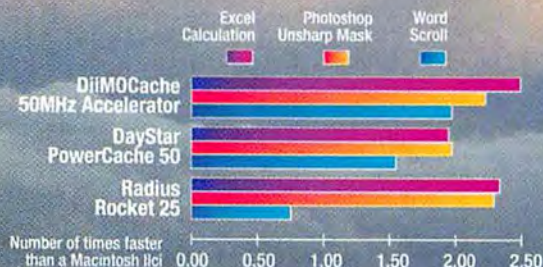
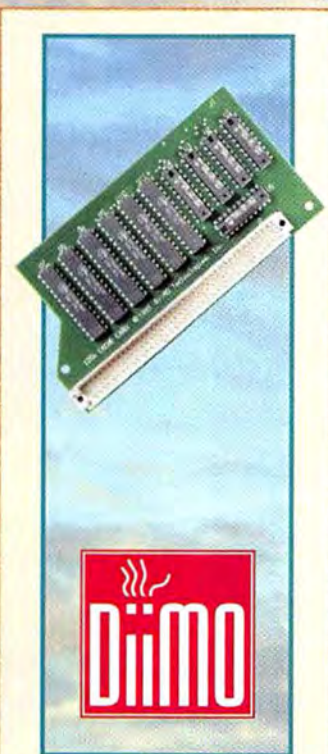
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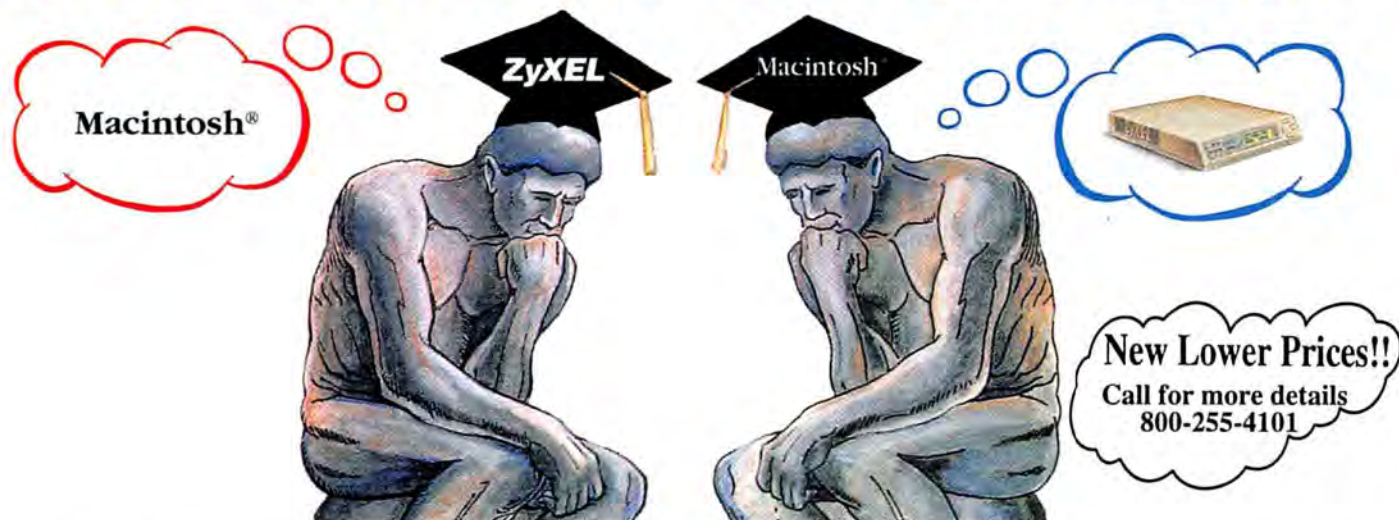
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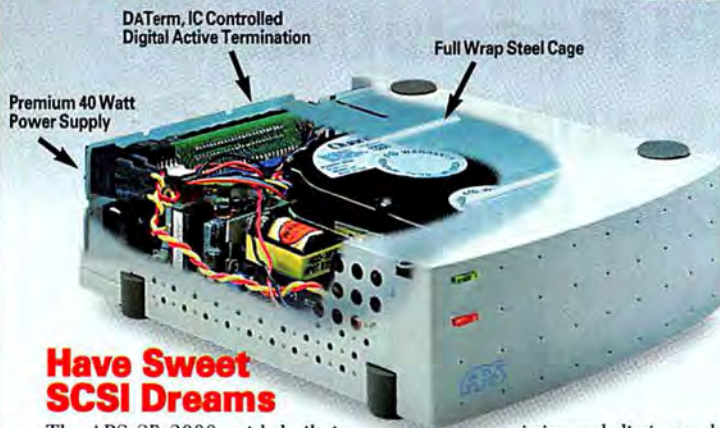
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*Build your own bundle! Buy any 6 CDs from our full line of CD titles and you can get the fastest CD ROM drive available - the APS T 3401 - for only \$399.

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TAPE DRIVES

APS T 155 MB Tape Backup- \$479

155MB Backup Tapes - \$19, 10 Pack \$170

*Only Available in ZIP Code.

APS now has an international sales department...!!

On parle Français. Se habla Español. Wir sprechen Deutsch.

International fax response in less than 24 hours, during business hours. Guaranteed !!

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MAGNETO OPTICAL

Model Internal* SR 2000

APS 128MB MO¹ \$769 \$799

Mechanism is Epson Magneto-Optical OMD-5010

128 MB cartridge - \$49

SYQUEST

APS SQ 5110² 44/88 499

88MB cartridges - \$100 unformatted, \$105 formatted

APS SQ 3105¹ 105MB 499

105MB cartridges - \$59 unformatted, \$64 formatted

*Excluding CD-ROM and Tape Drives

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Quantum



ClubMac 30 DAY MONEYBACK GUARANTEE

A ClubMac Quantum Drive is the best "plug-and-play" storage solution for your Macintosh computer. All Quantum drives are backed by ClubMac's 30-Day Money Back Guarantee and TWO Year Warranty (Go-Drives include ONE Year Warranty).

GO-DRIVE SERIES

2.5" POWERBOOK DRIVES

Capacity	Access	Internal	External
85mb	17ms	\$209	\$309
127mb	17ms	\$249	\$349
170mb	17ms	\$279	\$379
256mb	17ms	\$389	\$489

External Go-Drives come in battery powered case as shown.

ELS SERIES

3.5" LOW PROFILE, LOW POWER

Capacity	Access	Internal	External
127mb	17ms	\$192	\$252
170mb	17ms	\$195	\$255

LPS SERIES

3.5" LOW PROFILE

Capacity	Access	Internal	External
240mb	11ms	\$239	\$299
270mb	11ms	\$279	\$339
340mb	11ms	\$329	\$389
525mb	10ms	\$589	\$649
1080mb	11ms	\$889	\$949

PRODRIVE SERIES

3.5" HALF HEIGHT

Capacity	Access	Internal	External
700mb	10ms	\$779	\$839
1225mb	10ms	\$1029	\$1089
1800mb	10ms	\$1225	\$1285

FUJITSU

ClubMac 30 DAY MONEYBACK GUARANTEE

UP TO FIVE YEAR WARRANTY



Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
230mb	M2637	2.5" Low Profile	15ms	220mb	\$369	\$469
520mb	M2624	3.5" Half Height	9ms	496mb	\$589	\$649
1.2GIG	M2694	3.5" Half Height	8.5ms	995mb	\$929	\$1019
2.4GIG	M2654	5.25" Full Height	11.5ms	2000mb	\$1629	\$1729



Seagate

ClubMac 30 DAY MONEYBACK GUARANTEE

Seagate 5.25-inch full height drives are available in capacities ranging from 1.6 gigabytes to 3.4 gigabytes. These drives feature and av. seek time as low as 11ms, 256KB cache buffer, rotational speed up to 5,400 RPM, SCSI-2 interface, 200,000 hour MTBF and ONE Year Warranty

Unformatted Capacity	Model	Description	Access Time	Actual MAC Capacity	Internal	External
3.5" HALF HEIGHT						
1.2GIG	ST11200N		10.5ms	1000mb	\$939	\$999
2.4GIG	ST12400N		9ms	2000mb	\$1649	\$1709
1.9GIG	ST11950N	Barracuda 1	8ms	1350mb	\$1579	\$1639
2.4GIG	ST12550N	Barracuda 2	8ms	2050mb	\$1949	\$2009
5.25" FULL HEIGHT						
1.6GIG	ST41651N	Wren-8	15ms	1350mb	\$1129	\$1229
2.1GIG	ST42100N	Wren-9	12.9ms	1900mb	\$1439	\$1539
2.4GIG	ST42400N	Elite-2	11ms	2050mb	\$1799	\$1899
3.4GIG	ST43400N	Elite-3	11ms	2750mb	\$2219	\$2319

FEATURING



SyQuest
REMOVABLE TECHNOLOGY

ClubMac 30 DAY MONEYBACK GUARANTEE

	Internal	External
ClubMac 44mb	\$259	\$299
ClubMac 88c	\$405	\$455
ClubMac 105mb	\$389	\$429
ClubMac 270mb	\$619	\$659

CARTRIDGES

44mb/105mb	\$59
88mb	\$89
270mb	\$99

All SyQuest drives include a TWO Year Warranty, SCSI Director formatting software, and necessary cables for "plug-and-play". All SyQuest cartridges include a ONE Year Warranty.



NEW CLUBMAC 270MB REMOVABLE

3.5" DUAL REMOVABLES

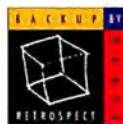
Dual 105mb	\$729
Dual 270mb	\$1179
Dual Combo 105/270*	\$1029

5.25" DUAL REMOVABLES

Dual 44mb	\$549
Dual 88c	\$649
Dual Combo 44/88c*	\$729

* Dual Combos come with both types of media

CLUBMAC TAPE BACKUP SYSTEMS



ClubMac 30 DAY MONEYBACK GUARANTEE



Capacity	Model	Media	Internal	External
DAT TAPE BACKUP SYSTEMS				
2.0GIG	Hewlett Packard 35470A	DDS	\$1009	\$1029
3-5GIG	Hewlett Packard 35480A	DDS-DC	\$1089	\$1109
4-8GIG	Hewlett Packard C1533A	DDS-2	\$1629	\$1649
2.0GIG	Sony SDT-2000	DDS	\$879	\$899
3-5GIG	Sony SDT-4000	DDS-DC	\$1039	\$1059
4-8GIG	Sony SDT-5000	DDS-2	\$1359	\$1379

8MM TAPE BACKUP SYSTEMS

2-5GIG	Exabyte 8205	8mm	\$1569	\$1589
5-10GIG	Exabyte 8505	8mm	\$2409	\$2429

ClubMac Tape Backup Systems include Retrospect v.2.0 Backup Software, ONE Tape and ONE Year Warranty.

CLUBMAC OPTICAL DRIVES



"Low price and all-around value characterize this 128MB rewritable drive."
-Macworld Editor's Choice December 1993



"Without question the best bargain among 5.25" drives."
-Macworld Editor's Choice December 1993

	Internal	External
ClubMac 3.5" Fujitsu Optical (M2511A)		\$839
Fujitsu 3.5" Dynamo		\$869
ClubMac 3.5" 128MB Epson Optical	\$759	\$789
ClubMac 5.25" 650MB Sharp Optical	\$1669	\$1699
Hewlett-Packard 5.25" 1.3GIG Optical External		\$2699

All ClubMac Opticals include ONE cartridge and ONE Year Warranty.



E-Machines T16 II
• 440 x 480 up to 1024 x 768
• Comp. with on-board graphics on the Quadra and Centris
MacUser Magazine
January 1993



E-MACHINES

E-MACHINES MONITORS

ColorPageT16II	\$1139
E-Machines E20 Dual Mode Color	\$1589
E-Machines T20 Multi-Mode Color	\$2429
24-Bit Futura II SX / LX	\$419/775
24-Bit Ultra LX	\$1089
Simply TV	\$389



THUNDER 24

MONITORS

SuperMatch 21" (9771)	\$2379
SuperMatch 20T Multimode XL (9752-XL)	\$2539
SuperMatch Plus 20" Color (9785)	\$1649
SuperMatch 17T (9735)	\$1049

MULTIMEDIA

Video Spigot NuBus	\$369
Video Spigot LC	\$249

24-BIT GRAPHIC CARDS

Thunder II Lite	\$2475
Thunder/24	\$2149
ThunderLight	\$1669
Spectrum/24 PDQ Plus	\$1259 / 789

MONITORS

20"/20T Multiscan (2075R0)	\$2489
20/20 Multiscan Color (2020C)	\$1519
21" Mono/GrayScale (2110)	\$995
15" ClearVue/15 Portrait (1510)	\$399

DUOMATES

DuoMate B/16c	\$389/519
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GRAPHIC CARDS

PaintBoard Lightning	\$779
Horizon 24	Starting at \$3699
PaintBoard Turbo XL	\$1469
PaintBoard 8Li	\$319

MULTIMEDIA

MoviePak Presenter	\$1399
MoviePak	\$519
MoviePak with Adobe Premiere	\$1129
MoviePak2	\$1549
MediaTime	\$799
24XLTV / 24STV	\$2529/719
Video Expander II	\$499

RASTEROPS CORPORATION



HORIZON 24 with DSP

At 24-bits per pixel, the Horizon 24 delivers uncompromising, brilliant photorealistic color to the Macintosh. A must for prepress artists, media professional and others who count on realistic, accurate digital color for all their imaging applications.

Starting at \$3699
Horizon 24

radius



GRAPHIC CARDS MONITORS

PrecisionColor Pro 24X	\$1949
PrecisionColor Pro 24XP	\$485
PrecisionColor 24X	\$1495
PrecisionColor 24XX	\$769

PrecisionColor Display/17

- "On-the-fly" resolution switching, built-in video
- 640 x 480 up to 1152 x 870
- Digital Controls
- 0.25mm dot pitch

MULTIMEDIA

VideoVision Studio	\$3389
VideoVision Studio Upgrade	\$1529
VideoVision (Presentation)	\$1829
VideoVision (Basic)	\$1515
Rocket 33	\$965
RocketShare	\$389
PhotoBooster	\$729

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NETWORKING

ASANTÉ

10THUB/12	10BT Hub w/12 10T, Thk & Thn ports	\$465
10THUB/8	10BT Hub w/8 10T, Thn port	\$229
Mini EN/SC	Thn/10BT SCSI Ether w/DI & PB cable	\$297
Mini EN/SC10T	10T SCSI Ethernet w/DI & PB cable	\$237
FNT10TA	10T FriendlyNet Media Adapter	\$65
FNTNA	Thn FriendlyNet Media Adapter	\$65
MC-IIIE64	Mac II & Perf 600, Thk/Thn, 64K	\$139
MAC-IIIE64	Mac II & Perf 600, Thk, 10BT, 64K	\$139
MC3NB	Mac II & Perf 600, Thk/Thn/10BT, 64K	\$189
AP1001	AsantePrint, Thk/10BT or Thk/Thn	\$329

Star Net

StarNet 3 in 1 Card-NuBus, PDS, SE	\$149
StarNet Thk/Thn for NuBus, PDS, SE	\$99
StarNet Thk/10BT for NuBus, PDS, SE	\$99
StarNet MicroSCSI Thn/10BT SCSI Ether	\$249
StarNet Apple AUI Ethernet Adapter	
(Quadra, Centris, Laserwriters, WorkGroup Servers)	
Single Port 10BT or Thn	\$69
Dual Port 10BT and Thn	\$99
StarNet MAUI Products	\$119

(Allows connection of two of the following products to one ethernet port, comp. with Quadra, Centris, Laserwriters, WorkGroup Servers)

Warranties: All items manufactured by ClubMac are returned to ClubMac for warranty repair. All other items carry manufacturer's warranty. Money Back Guarantee: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. Returns: Call for RMA number! Any product that is returned WITHOUT an RMA number will be refused. All product information and prices are subject to change without notice. Not responsible for typographical errors.

NEC



\$719
NEC 4FG

January 1994
NEC MultiSync 4FG

MULTISYNC MONITORS

15" MultiSync 3V	\$529
15" MultiSync 3FG	\$599
15" MultiSync 4FG	\$719
17" MultiSync 5FG	\$1099
17" MultiSync 5FGp	\$1359
21" MultiSync 6FGp	\$2369
MacFG 24X/24Xp	\$1199/479

NEC Monitors carry a THREE Year Warranty.
NEC MacFG cards carry a ONE Year Warranty.



\$799
Silentwriter 640

PRINTERS

Silentwriter 1097 (10ppm, up to 600 dpi, PS Level 2)	\$1379
Silentwriter 640 (6ppm, 300 dpi, PS Level 2, 52 fonts)	\$799

TRIPLE SPEED CD-ROM READERS

Includes Interface kit
w/o bundle w/bundle

MultiSpin 3Xe (External, 195ms access time)	\$589	\$689
MultiSpin 3Xi (Internal, 195ms access time)	\$499	\$599
MultiSpin 3Xp (Portable, 250ms access time)	\$439	\$539



- Toolworks Encyclopedia • Atlas Pack (World & US)
- Mayo Clinic • Lucas Game Pak II
- The Animals • Quickshot Speakers

MODEMS



\$209
MacFax

GLOBAL VILLAGE POWERPORT (for PowerBooks)

Mercury / Bronze / Silver / Gold	\$329/105/255/279
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GLOBAL VILLAGE TELEPORT (External Desktop)

Mercury / Bronze / Silver / Gold	\$329/165/255/279
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SUPRA MODEMS

SupraFaxModem 14.4 LC	\$159
V.32bis, V.42bis w/FAXref & Micro	
SupraFaxModem 14.4	\$225
V.32bis, V.42bis w/FAXref & Micro	
SupraFaxModem PB 14.4	\$279
V.32bis, V.42 Internal for Powerbook	



SCANNERS MICROTEK



ScanMaker IIg with Fractal Design Sketcher 1.0	\$485
ScanMaker IIsp with Photoshop 2.5 LE	\$799
ScanMaker II with Photoshop 2.5 LE	\$875
ScanMaker IIxe with Photoshop 2.5	\$1159

EPSON



ES-800C Pro-Mac	\$1249
1600dpi, Photoshop 2.5, ScanTastic, KAI's PowerTools	
ActionScanning-Mac	\$799
1200dpi, Photoshop 2.5 LE & ScanTastic	

DAYSTAR DIGITAL



POWERCACHE		W/O FPU	W/ FPU
33 MHz PowerCache	\$335	\$415	
50 MHz PowerCache	\$565	\$665	
PowerCache Adapter*		\$99	

* Req'd for non-Mac IIx, IIfx, IIfx, Performa 600

TURBO 040 ACCELERATORS

Turbo 040 (with FPU support)	
25 MHz Turbo 040	\$839
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Turbo 040i (w/o FPU support)	
20 MHz Turbo 040i	\$589
25 MHz Turbo 040i	\$665
33 MHz Turbo 040i	\$745
FastCache Turbo (128K cache for Turbo 040 family)	\$165
APPLICATION ACCELERATORS	
Image 040 (Quadra/Centris)	\$2249
Quad 040 (Quadra/Centris)	\$1579
Charger (Photoshop Accelerator)	\$485
Charger Plus / PFS	\$639/1829

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UC 840 \$1239

800 DPI Color Scanner with PhotoShop 2.5

Sigma Designs



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Color Monitor\$1020
ErgoView 20" Multi-Res Trinitron
Color Monitor\$2395



NEWLINE Systems Corporation

NEWLINE ImagePlus 6L...\$3795
880P (800 DPI).....\$1999



NEW! Portable DeskWriter...\$379
Color DeskWriter 550C.....\$599

4ML Laser Printer.....\$1075 4MP (600dpi) Laser\$1429



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Optima DeskTape Software.....\$329

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• Multiple AWARD WINNING software lets you do more with a DAT drive than backup and restore. DeskTape software mounts any DAT or 8mm tape drive directly on the Macintosh desktop for click and drag copying, viewing, and printing of up to 2 Gigs directly from tape, (Over 19 Syquest 105MB cartridges on a single cartridge), at a cost of 1 penny per Meg.

Desktop Mountable Tape

Optima DAT MiniPak 8000.....\$1795

Small external unit with either horizontal or vertical orientation

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- Mac Quadra 840av w/ 24MB RAM, 1 Gigabyte Hard Drive, CD ROM Drive (40MHz, Voice Recognition, Speech Generation, Video Input and Output, Stereo 16-Bit Sound, DSP Chip)
- Sigma 20" Trinitron Monitor
- UMAX UC840 24-Eit Scanner
- Apple Adjustable Keyboard
- Texas Instruments 600 dpi Laser Printer
- Adobe PhotoShop 2.5
- ABC Software Bundle & Cables

Quadra 660av GraphicStation \$5389/\$130 p/m*



- Mac Quadra 660av 8MB RAM, 900MB HD, CD ROM (Voice Recognition & Generation, Video In & Out, 16-Bit Sound, DSP)
- Apple AudioVision 14" Monitor
- Infinity 88/RW44 Syquest Drive
- UMAX 600DPI Color Scanner
- Extended Keyboard
- ABC Software Bundle & cables

Quadra 650 PowerSystem \$4579/\$148 p/m*



- Mac Quadra 650 (33MHz!) 8MB RAM, 900MB Hard Drive and CD ROM Drive
- Sigma ErgoView 17" Monitor & 16-Bit VRAM
- Extended Keyboard
- ABC Software Bundle & Cables

Quadra 605 Home Office System \$1699

- NEW! Quadra 605 4/80 (25MHz)
- Trinitron Color Monitor
- Prometheus Ultima Home Office 14.4 BPS Fax/Data & Voice Modem
- Quicken 4.0
- Extended Keyboard, Mouse
- ABC Software Bundle & Cables

*Price Per Month on Lease. Please Call for Details.

PERIPHERALS

WACOM



ARTZ (6" x 8") Graphics Tablet \$295
NEW! UD 1212R (12" x 12") \$529



ADESSO

Adesso Extended Keyboard...\$ CALL
Adesso PowerBook Keypad...\$ 49
Adesso Mouse.....\$ 29



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(Read & Write 256MB & 128MB)
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44MB Syquest Drive w/Cartr...\$339
Fujitsu 128MB Optical MD...\$895
QUANTUM 540MB Hard Drive \$629
QUANTUM 1.0GB Hard Drive \$969
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- PowerBook 180c 8/240
- Apple Portable StyleWriter Printer
- 14.4 Fax Modem
- Targus Leather Case
- ABC Deluxe PowerBundle



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PowerBook DUO 270c (Color) 12/240 w/Express Modem...\$3599
PowerBook 165c (Color) 8/80.....\$1899
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Delta Point
6949 Delta Graph 3



EtherPeek 2.0.3

EtherPeek is a packet-level Ethernet network analysis package which makes the complex tasks of network monitoring and debugging easy, graphic, and customizable. EtherPeek localizes network problems, performs sophisticated diagnostic tests, monitors network loads and events, tests hardware and software, and provides information for the management and planning of network configurations. Minimum requirements: Mac SE/30, System 6.0.5; color monitor recommended.

AG Group
7442 EtherPeek 2.0.3

\$95.



Abacus Mac Keypad

Try the Abacus on-line keypad with your PowerBook or any Mac. This keypad features its own LCD display and separate keys for switching to calculator mode or accessing secondary functions. It handles all the standard memory functions, calculator functions, and 15 F-key functions. Quick Cursors give you easy access to cursor keys in a familiar inverted "T" layout, and a Send Key lets you paste calculation results directly into your text or spreadsheet. The Abacus keypad delivers world-class Key Tronic quality, performance, and warranty protection, and it's built in the U.S.A.

Key Tronic
6270 Abacus Mac



\$145.

Retrospect Remote 2.0

Don't bet on individuals in your office to back up their work. To ensure all important data is secure, you need to automate backup with Retrospect Remote. It's the premier network backup software for the Mac. Easily back up your Mac plus 10 others on your network to the same storage device. Just drop a Remote INIT into the system folder of the 10 other machines and protect them with remote control - transparently, automatically, and overnight. It's fast - 20 to 100 percent faster than other backup software. Create any number of scripts to customize your backups. Then, schedule the scripts so backups can run automatically any day and at any time. Minimum requirements: Mac Plus, 2MB RAM, System 6.0.5, a hard disk, 4MB RAM under System 7.

Dantz
6050 Retrospect Remote 2.0



\$52.

ClickChange 2.0

Customize the Mac with your color schemes. Wildly refreshing patterns brighten your desktop and scroll bars. Choose 3D scroll bar, button, and window styles. Replace drag cursors and menu titles with colorful, animated alternatives. Included are custom cursors, menu bar icons, and Cursor Finders (flashy animations to expose the cursor when you can't find it), and much more!

Minimum requirements: Any Mac, 4MB RAM, System 7, a hard drive.
Double Click Software, Inc.
6213 ClickChange 2.0



\$30.

UnderWare

Get all the fun of a screen saver while you work! Other screen savers only run while your Mac is idle, but UnderWare runs in the background on your desktop. And these modules don't just blank out your screen, they actually interact with the icons and windows on your screen. (Like a fire-breathing dragon melting your trash can!) You get over 30 modules. After Dark modules work too.

Minimum requirements: Mac LC, 4MB RAM, System 7, Color QuickDraw.
Bit Jugglers
6931 UnderWare



\$92.

Mac Tools 3.0

With this latest version of Mac Tools, finding and fixing disk problems has never been easier. New TrashBack recovers accidentally deleted files in one step. New AutoCheck monitors your disk in the background and alerts you of small problems before they become disasters. And, new FastCopy makes quick work of floppy disk duplication. DiskFix rebuilds crashed hard disks - even checking the Desktop and System file for corruption. The Optimizer speeds data access on your hard disk. Also included is FileFix, the only utility that repairs corrupted Excel files. Plus, you'll find all the flexibility you need for backing up your hard disk. Only the MacTools utility collection offers complete anti-virus protection with full network support. Minimum requirements: Mac II, 2MB RAM, System 6.0.7, hard drive.

Central Point
7370 Mac Tools 3.0



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Flo

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Minimum requirements: Mac II, 5MB RAM, System 6.0.5, math coprocessor; color monitor recommended.

The Valls Group

7354 Flo



\$32.

Edmark

Thinkin' Things develops thinking skills essential for learning success. Kids play with Oranga Banga, the Frippe Shop, and other Thinkin' Things as they build memory, creativity, critical thinking, and problem-solving skills.

KidDesk is the first desktop utility designed to make computing easier for kids – and worry-free for parents.

Millie's Math House captures children's imaginations while teaching fundamental math skills. Fun-filled activities teach numbers, shapes, patterns, and problem-solving. No reading is required. Bailey's Book House encourages kids to explore essential reading concepts. Lifelike voices inspire children to learn letters, words, rhymes, and stories. Kids can create their own cards and storybooks.

Minimum requirements: KidDesk, Millie's Math House, Bailey's Book House – Mac Plus; 1MB RAM for B/W, 2MB RAM for color; System 6.0.7; hard disk; 2MB RAM for B/W, 4MB RAM for color under System 7. Thinkin' Things – Any Color Mac, 4MB RAM.

Edmark

- 6826 Thinkin' Things (for ages 4 to 8) (pictured)
- 5182 KidDesk (for ages 3 to 10)
- 6443 Bailey's Book House (for ages 2 to 6)
- 5183 Millie's Math House (for ages 2 to 6)

EDMARK



\$129.



America Remembered 1.0

This unique stock photo archive contains 500 images of the turn-of-the-century. Each image is reproduced as a 300 dpi PICT file, retaining the original colors and densities of the lithographers' art. Illustrators, graphic designers, and desktop publishers will find these easy-to-access images useful for clip art, reference, and inspiration.

Minimum requirements: 6MB RAM, System 6.0.7, 13" RGB monitor, CD-ROM drive.

Boraventures Publishing

7443 America Remembered 1.0

\$255.

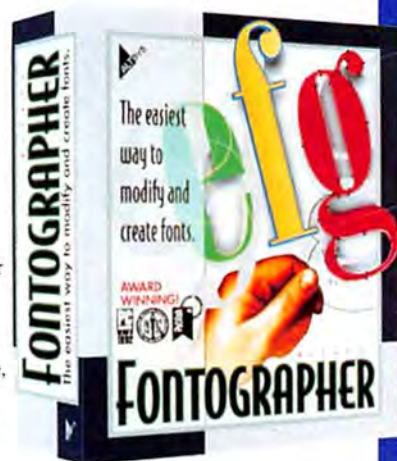
Fontographer 4.0

This is the easiest way to create and modify fonts! You get more than 200 new features with Fontographer 4.0, the latest successor to the powerful, award-winning font-editing program. Now it's easier than ever to add signatures, logos, foreign symbols, and customized characters to new or existing Type 1, Type 3, or TrueType fonts. The new multigon tool automatically draws starbursts and polygons, making accent- and logo-creation a snap. Auto Space and Auto Kern enable you to calculate each character's width and metric values automatically. The Clean Up Paths option automatically eliminates unnecessary points in your drawings for faster and smoother results. And now you can edit in Preview mode, so you'll have a better feel for how your character or graphic image will look as you modify or create fonts.

Minimum requirements: Any Mac, 4MB RAM, System 6.0.5, a hard drive.

Altisys

- 6422 Fontographer 4.0 (pictured)
- 6538 Fontographer Upgrade



\$489.

Painter 2.0 & ArtZ Tablet Bundle

Fractal Design's Painter 2.0 is the most innovative and exciting paint and photo-design program on the market. And Wacom has long been recognized as the premiere tablet maker. The ArtZ 6x8 ADB Tablet is the latest in a distinguished line. Painter 2.0 is a remarkable 24-bit color paint program that simulates the tools and textures of natural media. New tools include a spatter airbrush, Cubist effect, and multiple light sources. It's also a photo-design program with photo compositing and color separation. The ArtZ tablet is an amazing graphical input device. On it you use the stylus as if it were a pen or brush on your screen. The stylus is cordless, batteryless, and detects 120 levels of pressure.

Minimum requirements: ArtZ ADB Tablet – Mac SE, System 6.0. Painter 2.0 – Mac SE/30, 2.5 MB RAM, System 6.0.5.

Wacom Technology/Fractal Design Corp.

5355/5657 Painter 2.0 & ArtZ ADB Tablet Bundle



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Random House Unabridged Dictionary

This newly revised and updated Second Edition contains over 315,000 entries with over 75,000 example sentences and phrases. You can easily look up words – even if you misspell them – or search for all definitions containing a specific word. And, you can complete anagrams. Complete updated geographical and biographical entries as well as a new, 32-page full color World Atlas are also included. With more than 1,000 new words and meanings and 1,500 revised entries and definitions, it's no wonder *Washington Post Book World* called it "without doubt, today's unabridged dictionary of choice." You get both Windows and Macintosh versions on this disk!

Random House

6743 Random House Unabridged Dictionary



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Minimum requirements: Mac Plus, 1MB RAM, floppy drive, System 6.0.5, and a hard disk. Supports color and monochrome monitors.

Chipsoft

7226 MacInTax Final Edition (pictured)

7227 MacInTax/Quicken Bundle \$54.



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Minimum requirements: Mac Plus, 1MB RAM, System 6.0.5, a hard drive or external floppy.

Aldus Consumer Division

7056 DATEBOOK PRO, TOUCHBASE PRO, and Quicken 4 Bundle



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Radius

7523 PrecisionColor Display/17

6809 Intellicolor 20" \$2848.



\$45.

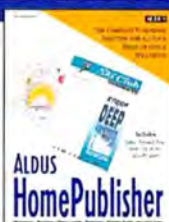
Aldus HomePublisher

This easy and complete publishing program lets you turn out professional publications - in just minutes. Aldus HomePublisher includes Aldus Personal Press for desktop publishing, full-featured word processing, image control, templates, and copy-fitting. Plus, you get 12 fonts from Bitstream, 100 ClickArt images, and a package of PaperDirect specialty paper. Perfect for home or office!

Minimum requirements: Mac Plus, 2MB RAM, System 6.0.7, hard disk.

Aldus Consumer Division

7245 Aldus HomePublisher



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Minimum requirements: Mac Plus, 2MB available RAM, System 6.0.7, hard drive, 4MB RAM under System 7.

WordPerfect

6681 WordPerfect 3.0 (pictured)

6874 WordPerfect 3.0 Competitive Upgrade \$78.



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Minimum requirements: Mac Plus, 1MB RAM, System 6.0.7.

CHAE

7057 Business Standard



\$214.



Arrange 1.1

This fully integrated and customizable Personal Information Manager lets you organize contacts, schedules, to-do lists, projects, files, and more. Forget about having to learn separate products to organize your life. Arrange is the one application for all of your information. Easily personalize Arrange or choose from the growing library of professional templates for one-stop custom solutions. And revolutionary features help you get organized fast. Intelligent Import, File References, and the Grabber make it easy to gather information from any other application! Automatic Linking allows you to link a person in your contact list to a meeting, to-do item, or their company. And, File Merge keeps your PowerBook and desktop Mac in perfect agreement.

Minimum requirements: Mac II, 2MB RAM, System 6.0.7, hard drive.

Common Knowledge

7215 Arrange 1.1



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Minimum requirements: Mac with 68020 processor, System 6.0.5, 3MB hard drive space.

Quadrangle

- 6929 Lights Out Sports Fans: Baseball (pictured)
- 6930 Lights Out Sports Fans: Baseball for Windows
- 7365 Lights Out Sports Fans: Hockey
- 7444 Lights Out Sports Fans: Hockey for Windows



\$54.

How Computers Work - CD-ROM

Have fun while you learn in this interactive look at the past, present, and future of the desktop miracle. How Computers Work features narrated slide shows on input, output, memory, programming, and applications. QuickTime animation takes you inside every device from the mouse to the memory cells of a CPU. It also includes tutorials for the most popular programs on the market today including Word, Excel, QuarkXPress, FileMaker Pro, Audioshop, and SuperPaint. And your children can easily learn the basics of programming using the included Logo programming tutorial, designed expressly for children.

Minimum requirements: Mac LC, System 6.0.7, 4MB RAM, 13" color monitor, and a Mac-compatible CD-ROM drive.

Time Warner Interactive Group
5987 How Computers Work



\$37.

Gus Goes to Cybertown

Join Gus, the hippest, most lovable dog ever in this multimedia learning experience. Search Cybertown for the elusive Cyberbuds, three intriguing friends your kids will love. This CD-ROM is completely interactive and has original songs, full-motion video, and captivating graphics and animation. Kids eight and under learn about counting, the alphabet, history, and more.

Minimum requirements: Any Mac supporting 256 colors, 4MB RAM, System 6.0.7, a CD-ROM drive.

Modern Media

7014 Gus Goes to Cybertown CD-ROM



\$38.

Pathways Into Darkness

Think fast! You'll have to if you're going to keep up with continuous-motion, 3D, texture-mapped graphics, and defeat an alien demon. Separated from your secret special forces team, you travel over 4 million square feet alone to save the world. Beautifully rendered graphics and active panning stereo sound combine to make Pathways Into Darkness the closest thing to virtual reality without a helmet. And, the smooth-scrolling, first-person interface works well with any 256-color Mac. If you need a little help on your mission, the **Official Pathways Into Darkness Hint Book** guides you through Pathways' levels, monsters, and strategies. Plus, you get maps, tips, and a level-by-level walk-through.

Minimum requirements: Any 256 or 8-bit color Mac, 1MB RAM, System 6.0.5, 5MB hard disk space.

Bungie Software

- 6639 Pathways Into Darkness (pictured)
- 7189 Official Pathways Into Darkness Hint Book \$11.



\$41.

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ATTENTION PARENTS! This fun, interactive guide combines animation, illustrations, sound effects, and text to cover parenthood from prebirth to age 5. Explore Family Profile to help "predict" your child's looks or determine potential risks. Medical Records with electronic growth charts, "Biological Clock," Pregnancy Timetable, and much more make this the most comprehensive parents' program available.

Minimum requirements: Any Mac with 1MB RAM, System 6.0.5, a hard drive.

Atlantis

- 6991 ReadySetGrow! (pictured)
- 6992 ReadySetGrow! Windows \$41.



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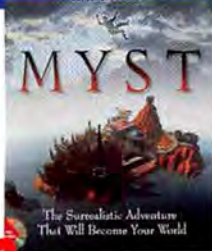
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Explore the bizarre Island of Myst. 3-D color graphics, video, and animation clips push Myst to the edge of Virtual Reality.

Minimum requirements: Mac LC or II series, 4MB RAM, System 7.0.1, 8-bit Color, CD-ROM drive.

Broderbund
7085 Myst



American Visions

Ever walk around a museum and wonder what the artists were like? American Visions presents 250 great works of art representing 140 American artists along with videos, photographs, and narrative about the artists and their work. Narration by the collector and the artists reveals their thoughts on art, life, and the process of creating.

Minimum requirements: LCII, 5MB RAM, System 7, 256 color 13" monitor, CD-ROM drive.

Eden Interactive
7457 American Visions

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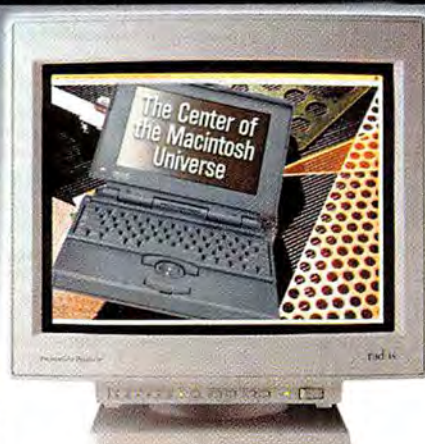
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 7562 1400-Batt. 59.95 10392 Charg. 64.95
 * **Connectix ... 30 day MBG**
 8441 CPU 55. 10765 Virtual 3.02 55.
 * **Dove Computer ... 30 day MBG**
 5383 DoveFaxPB 99.
 * **Global Village ... 30 day MBG**
 7720 PowerPort/Silver 269. 7710 /Gold 299.
 * **I/O Design Cases ... 30 day MBG**
 8121 PowerBook SL 47.95 8113 EX 59.
 * **Kensington ... 30 day MBG**
 11552 NoteBook Traveler Compact Case 49.
 14018 NoteBook Tote Case 35.95
 1092 Deluxe 75. 9585 Executive 115.

Technoggin ... 30 day MBG
 14015 *PowerPlate SX*—Up to 5 times the battery life for your PowerBook. High-capacity rechargeable PowerPlates attach easily to your PowerBook. No "memory effect." PowerBook AC adapter charges PowerBook & PowerPlate simultaneously. Designed for color PowerBooks..... **\$299.**
 14014 *PowerPlate 3X*—Matches PowerBook footprint..... **239.**
 14013 *PowerPlate Mini 3*—Basic, economical..... **169.95**

SuperMac/E-Machines ... 30 day MBG
 10322 *PowerLink Presenter*—Lets you give large-screen presentations with your PowerBook Duo. Quickly link to Mac or SVGA displays, TVs, LCDs, and projectors..... **\$469.**

Lind Electronic Design
 14587 SBC-2 \$139. 14841 BL4-200. \$179.95
 * **Prometheus ... 30 day MBG**
 11965 *Ultima Home Office-PowerBook*..... 289.
 Sharp
 12864 Expert Pad 699. 12865 AC Adapter 39.
 * **Sophisticated Circuits ... 30 day MBG**
 7425 PowerPad 69.95 7419 w/QuickKeys 109.
 * **Symantec ... 60 day MBG**
 1199 Norton Essentials for PowerBook 1.1 87.
 * **Targus Cases ... 60 day MBG**
 11207 Leath. PB Case 95. 1305 Universal 69.
 Technoggin, Inc. ... 30 day MBG
 14014 PowerPlate 3X 239. 14015 5X 299.
 14013 PowerPlate Mini 3 169.95
 U.S. Robotics
 11841 WorldPort 14.4 Fax 269.
 Utilitron, Inc.
 3012 PowerSwap (swap batt. w/o shutdown) 25.
 * **Zoom Telephonics ... 30 day MBG**
 10267 FaxModem PBK144 199.95

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 11558 TouchBase or 11557 DateBk. Pro ea. 49.
 8614 TBase Pro/DateBook Pro w/Quicken 89.95
 * **Attain Corporation ... 60 day MBG**
 8465 In Control 85. 11545 w/Dynodex 99.95
 * **Baseline Publishing ... 30 day MBG**
 8881 Thunder 7 1.53 55.95
 * **CheckMark ... 60 day MBG**
 5863 Multileader 229. 5862 Payroll 169.
 * **ChipSoft ... 30 day MBG**
 8059 MacInTax 1040 39.95
 3916 MacInTax/Quicken Bundle 54.95
 State Tax Packages ea. 34.95
 * **Clarix ... 30 day MBG**
 3903 ClarixWorks 2.0 for Mac 199.95
 3836 FileMak. Pro 265. 14732 MacW. Pro. 95.
 * **Inspiration ... 30 day MBG**
 11269 Inspiration 4.0 165.95
 * **Intuit ... 30 day MBG**
 11845 Quicken 4.0 39.95
 * **Lotus Development ... 60 day MBG**
 12715 Spec.: 1-2-3 Mac & DeltaGraph Pro 105.
 * **MECA ... 60 day MBG**
 3004 TaxCut 1040 Mac 34.95
 2796 Managing Your Money 6.0 35.
 * **Microsoft ... 30 day MBG**
 2884 Works 3.0. 155. 3669 Excel 4.0 295.
 4902 Word 5.1 295. 2878 PowerPoint 3.0 295.
 2565 Project 3.0 445. 5454 MS Office 3.0 475.
 * **Now Software ... 30 day MBG**
 1793 Now Up-to-Date 65. 2366 (10 pk.) 519.
 * **Palo Alto ... 60 day MBG**
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 * **ProVUE ... 60 day MBG**
 4582 Panorama 249. 11540 PowerTeam 95.
 * **Symantec ... 60 day MBG**
 7636 ACT! 169.
 * **Teleware ... 30 day MBG**
 14187 M.Y.O.B. 55. 14188 w/Payroll 109.95
 * **WordPerfect ... 60 day MBG**
 4268 WordPerf. 3.0 299. 4711 Upgd. 79.95

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 Adobe (New lower prices on fonts.)
 4145 Adobe Premiere 3.0 429.95
 11843 Illustr. 368.95 6644 Photoshop. 548.95
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 11548 PageMaker 579.95 6678 Upgd. 139.95
 Allsys
 1195 Fontographer 258.95
 * **Apple Computer ... 30 day MBG**
 3008 Apple Font Pack 45.95
 * **Ares Software ... 30 day MBG**
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 Broderbund Software
 13603 Print Shop Deluxe 49. 3572 Kid Pix 34.
 * **Clarix ... 30 day MBG**
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 * **DeltaPoint ... 60 day MBG**
 12974 DeltaGraph Pro 3 139.95
 * **Daneba Software ... 30 day MBG**
 11055 artWORKS 99. 3227 Canvas 3.5 259.
 Fractal Design
 10402 Painter 2.0 265. 1564 PainterX2. 94.95
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 12279 Astound 249.
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 4202 Morph 2.0 154.95
 * **Letraset - Full FontTek library avail. call**
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 12980 Ready,Set,Go! 6.0 149.95
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 7612 QuarkXPress 3.2 589.
 * **Ray Dream ... 30 day MBG**
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 * **T/Maker ... 30 day MBG**
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 3144 Incred. Images or 3147 CD-ROM ea. 89.95

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 * **Aladdin Systems ... 30 day MBG**
 7410 Stiffit SpaceSav. 34.95 6740 Deluxe 69.
 * **Apple Computer ... 30 day MBG**
 1206 At Ease 45.95 7072 QuickTime Kit 105.
 Chinese or Japanese Lang. Kit., ea. 195.
 1074 System 7.1 59.95 13047 S7 Pro. 99.95
 10478 System 7.1/Font Pack Bundle 62.
 * **Berkeley Systems ... 30 day MBG**
 1502 The Disney Collection Screen Saver. 29.
 5737 After Dark 2.0x (30+ screens!) 29.
 2198 More After Dark 25. 2196 Bundle 39.95
 3392 Star Trek: The Screen Saver 29.
 * **CE Software ... 60 day MBG**
 1727 CalendarMaker 39. 7927 QuickKeys 105.
 * **Central Point ... 30 day MBG**
 5041 MacTools 3.0 85.95 10595 Safe/Sound 32.
 * **Dantz Development ... 30 day MBG**
 9115 DiskFit Direct 1.0 29. 3393 Pro 72.
 5255 Retrospect 145. 7945 Remote 2.0 259.

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 3393 *DiskFit Pro 1.1*—Efficient media backup..... **72.**

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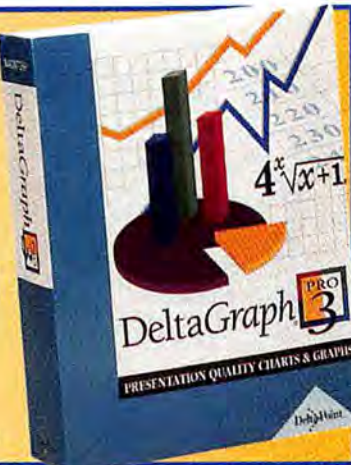
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- ★ **Harvard Systems Corp. ... 30 day MBG**
- 11193 *Kai's Power Tools for Photoshop*..... 89.
- ★ **Inline Software ... 30 day MBG**
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- ★ **Kent Marsh Ltd. ... 30 day MBG**
- 9513 *FolderBolt* 73. 1839 *NightWatch II* 89.
- MicroMat Computer Systems**
- 3732 *MacEKG II*..... 89. 2998 *DriveTech*..... 42.
- ★ **Now Software ... 30 day MBG**
- 12303 *Now Compress* 46. 12304 *FUN!*..... 29.95
- 6925 *Now Utilities 4.0*..... 84.
- Stac Electronics**
- 11568 *Stacker for Macintosh*..... 75.
- ★ **Symantec ... 60 day MBG**
- 3955 *Suitcase 2.1.3*..... 53.
- 14244 *SuperDoubler*..... 79.95
- 5176 *SAM*..... 65. 6748 *NUM*..... 95.
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- ★ **Callisto ... 30 day MBG**
- 11756 *Super Maze Wars*..... 39.95
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- ★ **Edmark Corporation ... 30 day MBG**
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- 1078 *Bailey's Book House*..... 29.
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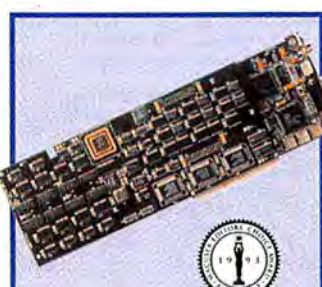


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3732 *MacEKG 2.06*—Automated diagnostic features locate minor problems before they become disasters. Historical arrays show changes in your Mac since the last test. Also notices software conflicts and hardware deterioration..... **\$89**.

- ★ **Maxis ... 30 day MBG**
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- 2868 *Flight Simulator 4.0 (CP)*..... 42.
- 14214 *Creative Writer*..... 42.95
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- 7723 *Lang. Explorer or 7767 ClockShop* ea. 29.
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- ★ **StarPlay Productions ... 30 day MBG**
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- Voulette**
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- 1014 *ConcertWare Pro 1.0*..... 175.
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- 7651 *Action!*..... 209. 5087 *Director 3.1*..... 799.
- Nova Development**
- 11101 *Kaboom!* 29. 12278 *w/More Kab.* 40.
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- 1738 *PrecisionColor Pivot (req. interface)* 949.
- 1749 *VideoVision Studio Upgrade*..... 1699.
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- 10529 *CPD-1730 17"*..... 1149.
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- 12704 *20" Color 1849.* 10321 *Col.Pg. T1611* 1299.
- 10322 *Presenter or 8028 Futura IISX* ea. 469
- 8005 *Ultura LX* 1199. 7985 *EtherDock.* 649.
- VideoLabs**
- 13121 *FlexCam (camera)*..... 499.95

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- Apple Computer**
- 13722 *AppleCD 300*..... 399.
- 13725 *PowerCD (with 3 free CD titles)* .. 399.
- ★ **Claris Clear Choice ... 30 day MBG**
- 13907 *From Alice To Ocean Bk. (w/CDs).* 46.95
- Broderbund**
- 13600 *The Tortoise and the Hare*..... 34.
- 13602 *The New Kid on the Block*..... 34.
- 13601 *The Treehouse*..... 36.
- FWB, Inc.**
- 10198 *CD ToolKit*..... 49.
- 11582 *HammerCD*..... 659.
- ★ **Microsoft ... 30 day MBG**
- 1741 *Musical Instruments on CD-ROM*..... 55.
- ★ **Presto Studios ... 30 day MBG**
- 11330 *The Journeyman Project*..... 44.95
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- ★ **Spectrum Holobyte ... 30 day MBG**
- 1485 *Iron Helix*..... 59.95
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- 7454 *Hell Cab 1.0 (CD-ROM)*..... 64.

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- ★ **Apple Computer ... 30 day MBG**
- 7073 *Mac PC Exchange*..... \$59.
- 10453 *AppleShare 4.0* 1469. 14576 *Upd.* 539.
- 7101 *AppleTalk Remote Access 1.0*..... 149.
- 14231 *Remote Access 2.0 Client for Mac* 54.95
- Asanté Technologies, Inc.**
- Asanté *Lite Ethernet Cards* ea. 125.
- 2775 *10/T Hub-8* 249. 2772 *10/T Hub-12* 499.
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- 11052 *M1441 V.32bis FaxModem*..... 189.
- ★ **Cardinal Technologies ... 30 day MBG**
- 11698 *MVP144Mac with FAX*..... 189.
- Coactive**
- 1184 *Mac Connector*..... 29.95
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- ★ **CompuServe ... 60 day MBG**
- 1676 *Membership Kit 25*. 1673 *Navig.* 3.2 49.
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- 1823 *MacLink Plus/PC Connect 7.5*..... 129.
- 12613 *MacLink Plus/Easy Open Translators.* 69.
- 12093 *MacLink Plus/Translators Pro 7.5*..... 95.
- ★ **Dayna ... 60 day MBG**
- 11878 *DOS Mounter Plus*..... 54.95
- DaynaPORTE (BNC or 10 BASE-T)* ea. 149.
- 8719 *EtherPr. or 9888 (10BASE-T)* ea. 339.95
- ★ **Dove Computer ... 30 day MBG**
- 12453 *DoveFax 144E* 249. 10200 *Pro+V* 399.
- ★ **Farallon Computing ... 30 day MBG**
- 11696 *Etherthin Mac/PB*..... 309.
- 4869 *PhoneNET Connector 10-Pk (DINB)* 195.
- 9805 *Timbuktu 129*. 4866 *Remote 3.0* 129.
- 9516 *PowerPath 105*. 9518 *LocalPath.* 139.
- 6922 *ReplicaMac 69.95* 7407 *(10 user)* 499.95
- ★ **FreeSoft ... 30 day MBG**
- 6115 *White Knight 11*..... 85.
- 14804 *Second Sight*..... 119.95
- ★ **Global Village ... 30 day MBG**
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- Hayes**
- 10822 *ACCURA 2400* 74.95 11422 *96 Fax* 215.95
- 11419 *ACCURA 144+Fax144*..... 239.95
- 2300 *Smartcom II* 84. 5971 *OPTIMA 24* 119.
- Insignia Solutions**
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- 4089 *SoftPC*..... 99. 10554 *SoftPC Pro.* 195.
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 NetModem/E (thick, thin, 10-T) ea..... 1439.
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 1964 MicroPhone II 139. 3455 Pro..... 209.
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 11842 Sportster 14.4 Mac & Fax..... 229.
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 3553 FaxModem VFX V.32bis..... 179.95
 14152 FaxModem VFX 14.4V for Mac..... 199.95
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 7925 OmniScan..... 399.
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 12862 105 Key Deluxe Keyboard..... 99.
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Key Tronics
 6974 Mac Pro+Keybd 135. 1070 TrakPro 219.
Kraft Joysticks
 7519 KM300... 42. 9508 Thunderstick..... 52.
***Microtek Labs, Inc. ... 30 day MBG**
 13815 ScanM. IIG 499.95 13814 IISP 779.95
***Mouse Systems ... 30 day MBG**
 7520 Litt. Mouse ADB or 8001 Plus ea. 69.95

***Soph. Circuits ... 30 day MBG**
 8009 PowerKey \$75. 8008 Remote \$32.
Texas Instruments
 13658 microLaser Pro 600 PS23..... 1399.95
 13659 microLaser Pro 600 PS65..... 1599.95
 14237 microMarc InkJet..... 299.95
UMAX
 13748 UC630 869.95 13751 UC1260 1849.95

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 8361 1.44 MB HD Drv. 229. 5290 Pts. Drv. 299.
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***DayStar Digital ... 30 day MBG**
 11987 FC 040 (Quadra 700, 800, 900, 950) 359.
 1312 Trb. 040i 20 MHz 649. 1302 33 MHz 849.
 1670 PowerCache 50 MHz (no FPU)..... 629.
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 9529 PocketHammer 170..... 459.95
 14322 PE 340 FMF..... 579.95
 14318 PocketHammer1000FMF..... 1349.95
IOmega
 6499 90 MB Transp. (reqs. interface)..... 479.95
 2467 90 MB Gold Std. Rem. Cart (3) 289.95
 8781 Mac Transportable 90 PRO..... 479.95
 10499 Transportable MultiDisk 150..... 589.95
***MDS Drives ... 30 day MBG**
 8141 MDS 44 SyQuest w/SW & cart..... 299.
 5534 MDS 88 469. 10590 MDS 88c..... 489.
 11963 MDS 120 MB Fixed Drive (upright) 329.95
 11962 210 (upr.) 429.95. 11961 540 799.95
 11881 MDS 120 MB (zero footprint)..... 289.95
 11880 210 MB 429.95. 11863 540 MB 799.95
Peripheral Land, Inc. (PLI)
 8327 Infinity 40 Turbo..... 379.
 11470 Infinity 88/RW 44..... 625.
 2864 Infinity Floptical Drive (21 MB)..... 409.
 8811 1 GB Mini Array..... 2329.95

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 11663 StyleWrit II Cart. 23. 11669 (3 pk.) 63.
 LaserWriter Toner: Pers. 65. LW II 85.
 Disks/Carts.: BASF, Fuji, KAO, Sony
***I/O Design Cases ... 30 day MBG**
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 11962 210 (upright)..... **429.95**
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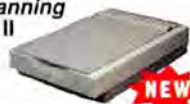
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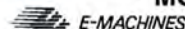
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1. For how many micro computers do you buy products?
(check one)

☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)

☐ 01) Administrative/ ☐ 03) Engineering/R&D
☐ General Management ☐ 04) Finance/Accounting
☐ 02) MIS/DP, Communications ☐ 05) Marketing/Sales
Systems, Programming ☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE:
☐ Accounting
☐ Spreadsheets/Financial Planners
☐ Project Managers/Planners
☐ Word Processors
☐ Database Managers
☐ Graphics/Presentation Software
☐ Integrated Software
☐ Communications
☐ Utilities

Q3 Q4
☐ 01 ☐ 01
☐ 02 ☐ 02
☐ 03 ☐ 03
☐ 04 ☐ 04
☐ 05 ☐ 05
☐ 06 ☐ 06
☐ 07 ☐ 07
☐ 08 ☐ 08
☐ 09 ☐ 09

HARDWARE:

☐ Modems
☐ Scanners
☐ Microcomputers
☐ Printers/Plotters
☐ Monitors/Displays
☐ Storage
☐ Add-in Boards
☐ Networking

Q3 Q4
☐ 10 ☐ 10
☐ 11 ☐ 11
☐ 12 ☐ 12
☐ 13 ☐ 13
☐ 14 ☐ 14
☐ 15 ☐ 15
☐ 16 ☐ 16
☐ 17 ☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)

☐ 01) Initiation/Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)

☐ 01) over \$5 million ☐ 05) \$50,000 - \$99,999
☐ 02) \$1 - 5 million ☐ 06) \$10,000 - \$49,999
☐ 03) \$500,000 - \$999,999 ☐ 07) under \$10,000
☐ 04) \$100,000 - \$499,999

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- Q3 Q4**
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 Monitors/Displays
 Storage
 Add-in Boards
 Networking

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1.2GIG	3.5"	8.5MS	\$ 850	\$ 910
2.4GIG	5.25"	11.5MS	\$ 1550	\$ 1610

Seagate 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	INTERNAL	EXTERNAL
600MB*	3.5"	10.5MS	\$ 839	\$ 889
1.2GIG	3.5"	9MS	\$ 899	\$ 949
1.6GIG*	5.25"	15MS	\$ 1149	\$ 1249
2.2GIG*	5.25"	12MS	\$ 1429	\$ 1529
2.4GIG	5.25"	11MS	\$ 1729	\$ 1829
2.4GIG	3.5"	9MS	\$ 1695	\$ 1755
2.5GIG	3.5"	8MS	\$ 1949	\$ 1999
3.4GIG	5.25"	10MS	\$ 2169	\$ 2269

HITACHI 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	INTERNAL	EXTERNAL
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1.3-8GIG	Archive Turbo*	4MM	\$ 1139	\$ 1199
1.3-2GIG	Exabyte 4200*	4MM	\$ 939	\$ 999
1.3-5GIG	Exabyte 8205	8MM	\$ 1539	\$ 1599
1.3-10GIG	Exabyte 8505	8MM	\$ 2179	\$ 2279
4.0-8GIG	Sony 4000	4MM	\$ 1089	\$ 1149
4.0-8GIG	Sony 5000 DDS-2	4MM	\$ 1189	\$ 1249

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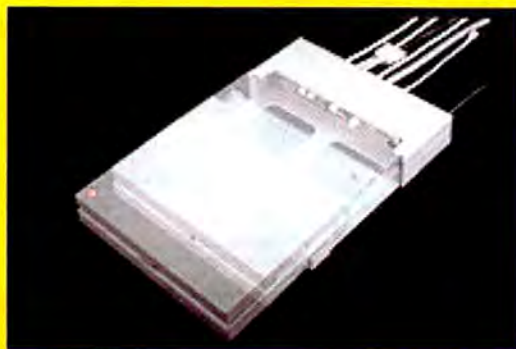
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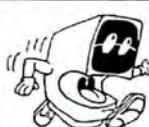
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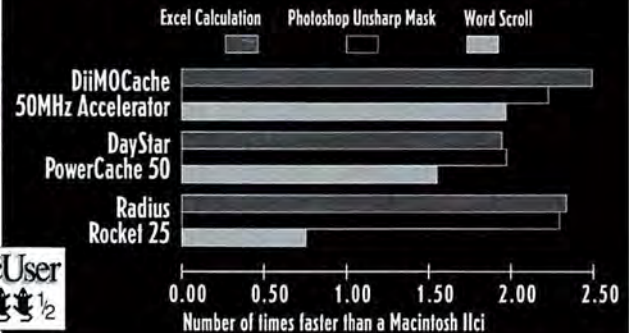
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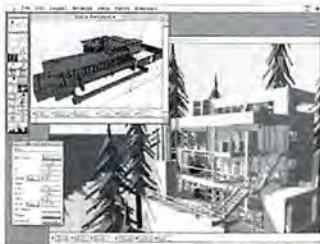
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These catchphrases are nice when they work. Airlines are best at dreaming them up. I still recall "Fly me!" and "Western Airlines — the oooooonly way to fly!" Electronics are harder to promote. When slogans do click, I think they can change a company's fortunes. An example of this was the "Sony, no baloney!" campaign of a decade ago.

But let's look at Apple's slogan and see what, if anything, it can do for the company. The ad I've seen the most is the one where a voice-over tells you how to install a hard drive in a PC. You see a lot of instructions, which include running half a dozen programs and jumping through hoops to get the drive installed.

In fact, many PC hard-drive subsystems are incredibly difficult to install, especially if you aren't using the standard IDE disk controller. On the other hand, if you're dropping in a Quantum hard card, it gets rather easy.

But Apple's point is still well taken — Apple is finally starting to hit the right hot buttons. The Mac is the plug-and-play computer for people who don't want to mess around for hours on end whenever they add new software or install a simple sound card.

Enter Microsoft

The PC community is aware of this, of course,

and Microsoft has led the charge for something called the Plug and Play standard. In case you haven't noticed, Microsoft has done a marvelous job over the years of watching what Apple does and then taking that technology to the larger PC arena.

Unfortunately, Microsoft doesn't always quite get it. If you visit with Microsoft coders, you'll discover that they do 90 percent of their work with keyboard shortcuts, not with the mouse. So, it's not surprising that when Apple and Microsoft both promote new technologies, such as the competing document-based computing standards OLE (Microsoft) and OpenDoc (Apple), the Microsoft version looks more like imitation than innovation.

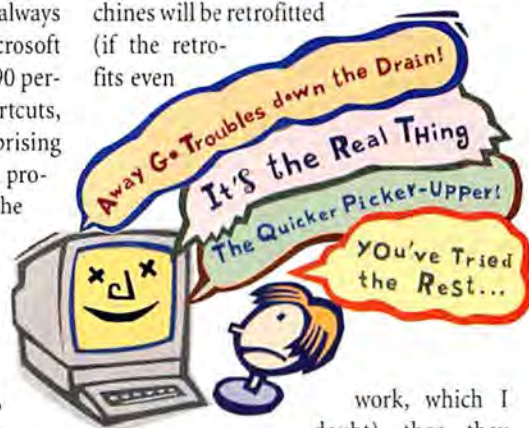
When it comes to usability, though, Microsoft is starting to see the light. After nearly a decade, it has added built-in networking to Windows (Windows for Workgroups and Windows NT). A little slow on the draw, if you ask me, considering that Macs have had built-in networking since the mid-'80s, but it's a start.

The Big Setup

What Apple has always been able to count on, though, and what it attacks in its current ad campaign, is the configuration misery that's inherent in the PC's design. Ironically, this problem was actually solved way back in 1987 when IBM announced the PS/2 and the Micro Channel. The Micro Channel recognized the cards in the machine and what they did. The PS/2 would then figure a way to work the cards into the system. But through sheer stupidity, IBM also said it would never license this technology, and the entire PC-clone industry went off in its own direction

— leaving IBM to sink under its own weight. IBM went from being the king of the sandbox to getting tossed out for getting greedy. So because IBM dropped the ball, PC configuration is still a nightmare.

Now, finally Microsoft comes up with the bright idea of Plug and Play. And Microsoft is a master of marketing, so what does it call this bold, new technology? "Plug and Play"! When in doubt, use the obvious. Of course, there are still 50 million PCs out there without Plug and Play capabilities. And if people think more than 10 percent of those machines will be retrofitted (if the retro-fits even



work, which I doubt), then they are hopeless optimists. A new ROM chip is required for each machine, and the ROM has to somehow work with the machine. Because the motherboard in a clone might be manufactured by 1 of 40 companies, this seems like a long shot.

Still, if the Plug and Play standard can be implemented on all new PC clones, then Apple's usability edge will vanish. Personally, I don't think Plug and Play will ever work as well as the Mac, which was designed to be plug-and-play (lowercase) from day 1. But don't count Microsoft out when there's money to be made.

As of today, Apple still has an edge, so why not beat the drum loud and hard? I just wish it had a better catchphrase than "It does more. It costs less. It's that simple." Doing more and costing less isn't the point, or Apple would have gone under a long time ago. It's that simple. ☹





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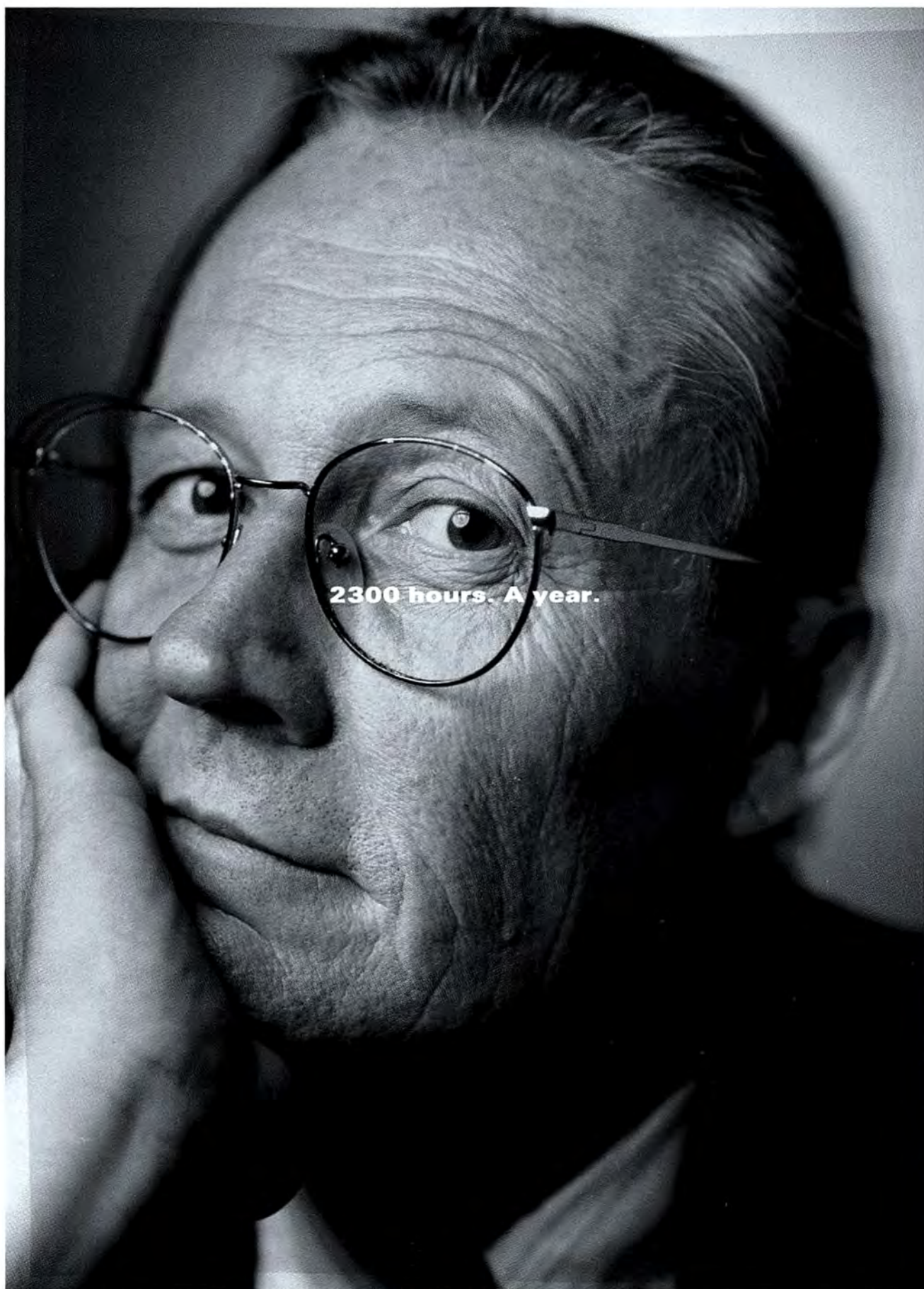
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