# Cites & Insights:
# Crawford at Large

## Introducing Cites & Insights: Crawford at Large

Just for amusement, let's assume that you haven't read *Crawford's Corner* or *Trailing Edge Notes*, my "newsletters-within-a-newsletter" that appeared in the 59 issues of *Library Hi Tech News* from March 1995 through December 2000.

If that's true, you must be wondering just what this is all about. The answer, of course, is that it's about 24 print pages.

Beyond that, definitions get a little fuzzy. The other working title for this was "Crawford at Large: Libraries, Media, Technology & Stuff." Both titles say something about what's here.

"Cites and Insights": Most of the ongoing content here springs from material I've read elsewhere. First are the cites, articles I think may be worth your while, primarily gathered in "Articles Worth Reading," "Review Watch," and "PC Values" (an objective discussion based on ads and Web sites). The insights are all the personal commentaries that spring from articles or other stuff I've dealt with. Why would you care what I have to say about these things? That's for you to answer; nobody's being forced to read this, and (unlike the predecessors) you don't get it with some other subscription.

"Libraries, Media, Technology & Stuff": My principal areas of concern. *Crawford's Corner* was mostly about personal computers and related technologies, with lots of "stuff" thrown in. In one way, "stuff" is my version of "content" and other quasi-meaningful terms. In another, it's a declaration that *Crawford At Large* will (I suspect) wander into much broader areas than its predecessors.

The best definition of what will appear here may be: Stuff I think is worth writing about that doesn't appear suitable for a "DisContent" column in *EContent*, a "PC Monitor" column in *Online*, or a freelance submission to *American Libraries*. If you like it, great. If you like it enough to want to support it, check "The Details" for notes on how to do so. If you hate it, stop downloading it—and if you want to disagree or comment, let me know.

Will a coherent editorial philosophy emerge over the next year? "Anything's possible" is false, but this is a case where it's possible, but unlikely.

## Inside This Issue



Trends and Quick Takes

## Free ISPs: Use Them While You Can

In the wonderful new world of the all-commercial Internet, *everything* is free—as long as you don't mind the ads and personal information-gathering. That's the promise, with some pundits going so far as to say that we can expect not only free PCs but also free televisions, maybe even free cars. With enough advertising, who needs to pay for anything?

As I've commented before, there's a little trap in that thinking. If everything's free, who pays for the advertising? Lately, a few observers have been asking hard questions about advertising on the Internet—the hardest of which is this: If the Internet is such a great ad medium, why are so many dotcoms spending millions on traditional advertising?

Free ISPs have been around for a while, although most of them haven't been around for very long. The ones with obtrusive ads get tiresome; the ones with unobtrusive ads—well, Freewwweb and WorldSpy had unobtrusive ads. "Had" is the relevant term: both services went under, turning their customers over to Juno's ad-heavy free service. I believe

this is one area where you get what you pay for. Twenty bucks a month is a bargain for ad-free Internet use if you use the Internet more than a few hours a month—and free ISPs rely on you spending lots of time so that you're seeing those ads.

## The Etail Revolution

Here's a chilling little item if you're heavily invested in the New Economy. According to Greenfield Online, as cited in the October 2000 *PC World*, "A new survey says that the percentage of Net users who have made a recent online purchase is down slightly from last year."

Elsewhere in that issue, an interesting article assumes that we all love to buy stuff online and reviews tools to make online shopping better. The article, "Smart tools for smart buyers" by Carla Thornton (pp. 58-62), is worth reading—and worth thinking about dispassionately. Some key points, either from the article or from my interpretation:

- "As e-tailers focus on the bottom line, bargains are getting tougher to find." Some Web merchants were selling below cost; far too many were issuing discounts that far exceeded any possible profit. The justification for this behavior is "customer acquisition," and that justification makes some sense if those expensively acquired customers are loyal. Which brings us to the next point.
- Shopping bots such as MySimon work *against* customer loyalty, by making broad comparison-shopping easy. But with MySimon and its peers, a little effort is required: you must go to MySimon.com and ask for a comparison. The new generation of shopping bots—Clickthebutton, Dash.com, and others—just sit there in the background. When you look for an item at your "favorite" Web store, the bot pops up to tell you where you can get a better deal. This is truly subversive stuff if it works, and Clickthebutton apparently does. In *PC World*'s test, when they looked for *The Thomas Crown Affair* on DVD at Amazon ($17.49), the bot suggested Sam Goody at $14.48. When they looked at a $233 Epson Perfection 1200U scanner, Clickthebutton said "Psst: Buy.com has it for $177.15."
- You can avoid giving out your credit card number at online merchants through a variety of techniques. I'm not sure why you'd need to do this, but the article includes the details.
- Companies are using 3D "showrooms" to make virtual shopping more interesting, but that almost requires the broadband that people aren't rushing out to buy.
- Then there's color. If you buy a sweater, shirt, or something similar from the Web, you want it to be the same color you saw on the screen—just as print catalogs provide accurate renditions of items. But computer monitors vary widely in color rendition, with substantial differences between the standard Mac color gamut and the standard Windows gamut and display-to-display differences as well. I set my brightness fairly low; if you set yours higher, you'll get different color saturation. A company called E-Color claims to fix this with True Internet Color, a download that lets you tune your monitor so that you'll see what you should be. Unfortunately, it doesn't seem to work, at least based on *PC World*'s initial tests.

The first and second points are the most significant, I believe. The only way Amazon will ever become profitable is if customers remain loyal as Amazon's prices go up. If people aren't bothered by Amazon's intrusive data collection and really *love* that "personalized" advice, that might work—but background shopping bots make it awfully easy to switch to another vendor. If customer loyalty has to be earned on each sale, those huge customer acquisition expenses were wasted money. (I'm using Amazon as an example because it's been the most blatant about losing money on every sale to become the Wal-Mart of the Web.)

In the real world, I will cheerfully pay a little more for several reasons, primarily to keep local merchants healthy (and keep a healthy mix of local merchants in the community) and to reward good person-to-person customer service. Loyalty to a Web merchant can't possibly strengthen local business, and so-called customer service on Web sites can't compare to my local hardware store or video rental store. I know why I won't shop at some online merchants (just as I know why I don't shop at Wal-Mart) and why others only come into play as last resorts—but there are very few commercial online sites to which I feel any loyalty. Then again, to be sure, all else being equal I'll buy in the real world. I don't claim to be typical, but I doubt that I'm alone.

## How Long are You On?

Here's a charming little factoid, from the October 9, 2000 *Industry Standard:* "U.S. Net users who hunt, attend tractor pulls and earn less than $30,000 spend 11 hours per month online at home. That's 5 hours more than surfers who earn $136,000 and live

in the wealthiest suburbs." The sources are Nielsen Netratings and Claritas.

Three comments come to mind immediately:

- If the demographic data is coming from voluntary forms attached to free Web services, consider it worthless. A fair number of knowledgeable (and reasonably affluent) Internet users fill out such forms to reduce the level of spam. One favorite profile is the high school dropout who earns $10,000 a year and has 16 children.
- Otherwise, it's hard to believe that the profile above represents a large enough sample to be meaningful: that is, at least 500 (and preferably at least 1,000) users reliably known to fit this profile, who allow their usage to be traced.
- On the other hand, as one who believes that home Internet use (other than chat, instant messaging, and email) isn't likely to be an all-consuming activity, I'd like this to be true. It means that well-to-do Internet users are averaging six hours per month, or about 20 minutes per day; that sounds about right, frankly.

## CD-RW: Muddying the Media?

Hugh Bennett's "CD writer" column in the November 2000 *EMedia* tells a startling story. Apparently, the race for higher-speed CD-RW results in a nonsensical decision: creating a separate, *incompatible*, CD-RW medium designed for use in 10x drives. (That's 10x for CD-RW, typically the second number in a drive's spec; 12x CD-R is fairly common and an entirely different matter.) You could see high-speed CD-RW blanks in stores marked as "4x to 10x"—but they might not work *at all* on your existing 4x or 8x CD-RW drive.

Bennett frequently harps on the relative unimportance of CD-RW as compared to CD-R, but in this case he's right to raise a red flag. Unless the discs carry a label specifying "use only with 10x drives," people *will* buy the wrong discs—after all, wouldn't you buy a "higher-quality" blank (4x-10x as opposed to 1x-8x)? Philips offers a solution—a special logo for drives and discs—but it's nonsensical, just as the MultiRead logo (for CD drives that can read CD-RW as well as CD-R discs) never meant much to users.

Very few consumers use more than a handful of CD-RW discs; most people burn dozens of CD-R discs for each CD-RW, particularly given the absurdly low prices of CD-R and the likelihood that a CD-RW disc (unlike CD-R) won't work on a typical audio CD player. It's hard to believe that nine minutes is too long to complete a 650MB CD-RW: that's what you should get at 8x speed. It's not at all hard to believe that consumers will be confused and upset by the incompatible blanks. This one seems to be a bad idea, pure and simple.

## Most Relevant Sites: Just Trust Us

Users are the final authorities on relevance—and the methods used to arrive at relevance rankings in most search engines and directories are arcane at best. One reason I appreciate Google is that they state their methodology up front; it may not be the ideal definition for relevance, but at least you know what you're getting.

James Fallows' column in the September 4, 2000 *Industry Standard* offers a crisp and remarkably telling commentary on "relevance" for many other search engines. The title is "Searching for Revenue"; the tease is "What happens when Yahoo and its kin start charging Web sites to be indexed?"

That's not a hypothetical. To some extent, it's already happened. Yahoo, and more recently LookSmart and Inktomi, charge fees to sites that want preferential coverage. GoTo.com simply sells positions within search results; the others, so far, haven't gone quite that far. Yahoo charges $199 for a promise that a site will be reviewed within seven business days. Inktomi charges a fee to assure that a site is indexed within 48 hours of submission and refreshed every two days thereafter.

Fallows, not precisely a left-wing radical, *praises* this trend as a "step back toward normal economic principles." Inktomi's spokesman says that the "only people unhappy" with the new policy are the people who "send us millions of [spam] pages a day."

Unsurprisingly, Sergey Brin of Google is a bit more nervous. "Suppose there's some very good Web site on cancer, but this Web site hasn't paid you? Are you going to give the user a worse site and worse source of information just because the site hasn't paid? I think it's an ethically difficult matter."

Web ethics? Wake up and smell the payola!

## The Broadband Follies: Quick Updates

The first *Grok* appeared in September 2000, with entertainment as its theme. Although it may be sold as a separate newsstand magazine, you can't subscribe to *Grok* (so far). The new perfect-bound monthly (192 pages this time around), with its hip slightly-oversize format (9.1x10.5 inches), is mostly a way for *The Industry Standard* to reduce its weekly heft

and get more advertising in the process. *Grok* is a new home for the magnificent special reports that help make *The Industry Standard* so worthwhile but made it too bulky. Now the weekly magazine fits neatly within its saddle-stitched 7.8x10.5" form (typically 200 to 300 pages), and *Grok* fleshes out special reports with lots of flash.

As you might expect from an entertainment issue, the first one has loads of hype, but it's also good reading. (I do appreciate the definitions of "net terms" on p. 15, where "Convergence" is defined "Union of the TV and PC. Still hypothetical, emphasis on the 'hype.'")

You may have to read carefully in some cases, however. A brief article on p. 15 notes, "Analysts say that it will be at least another two years before most consumers have both the superfast connections and the technology to watch TV-quality shows online." That "at least" is useful, given a Jupiter Communications projection on p. 29 of the same issue: "In 2003, more than three-quarters of online households will still be using dialup to access the Net." Jupiter hypes new technologies as much as most forecasters, so that's probably an optimistic estimate.

Postscript: *Grok* ends its run in February 2001. That may be just as well; the special reports don't need the extra flash.

# PC Values: Closing the Year

Without much doubt, the point system for PC values needs to be adjusted again. I've been using the same criteria since 1997. CPU value has improved at a fairly predictable value (defined by Moore's Law but enhanced by competition from AMD) and most aspects of a system have not improved at a similar rate. On the other hand, hard disk value has improved so rapidly that big hard disks—bigger than most users will ever need—now throw off overall value ratings.

I believe that this ongoing value watch continues to serve a purpose. I'll reconfigure the point system so that it bears a better relationship to today's costs and needs, with a rough target of 1.0 for January 2000's best midrange value from a top vendor. That doesn't mean you can multiply next year's value ratios by 8.7 to get comparable figures: the points will change in more complicated ways.

All systems include a mouse, keyboard, and either Windows 98 or Windows ME; all offer USB external connections and PCI expansion slots; all use ATA/EIDE internal drive controllers.

## Problems with "Others"

This fall has been particularly difficult for PC vendors below the top rank. Specifically, both CyberMax and Quantex disappeared (at least temporarily) because the company that supplied both of them went into Chapter 11. Earlier, Crossline and Microworkz staged disappearing acts for other reasons.

The real problem here is that Quantex wasn't just an also-ran: it was the fourth-largest direct seller, although far behind Micronpc (just as Micronpc is far behind Gateway and Dell). Quantex and CyberMax were two of very few second-string and third-string vendors that advertised regularly in *PC Magazine* or *PC World*. Checking the archives for PC Values, I find that 44 of the 68 "other" systems listed in 1999 and 2000 (including those below) were from CyberMax or Quantex. Crossline and Microworkz accounted for another eight. Summing up, if you went for one of the "other" best values advertised in the two biggest PC media over the past two years, chances are about 3 to 1 that you'd now own an orphan: 76% of the best-value listings were for firms that no longer exist. That's discouraging.

## October 2000

October's standard configuration includes 128MB SDRAM, 24x or faster CD-ROM, AGP (128-bit) accelerator with 32MB SGRAM, V.90 modem or Ethernet adapter, a 15.9-16" viewable display (usually called 17"), and wavetable sound with stereo speakers. Top-vendor systems represented better values than other systems in all categories.

- **Top, Budget:** Dell Dimension XPS B800: Pentium III-800, 40GB HD. *Extras:* MS Works Suite 2000, Altec Lansing speakers with subwoofer. $1,599, VR 14.78 (+8% since 7/2000, +33% since 4/2000).

- **Top, Midrange:** Dell Dimension 4100 1Ghz: Pentium III-1000, 40GB HD. Like budget but with harmon/kardon speakers, MS Office 2000 Small Business Edition. $1,999, VR 12.52 (+13% since 7/2000, +33% since 4/2000).

- **Top, Power:** Gateway Select 1100: Athlon-1100, 45GB HD. *Pluses:* 18" display, 64MB display RAM, DVD-ROM. *Extras:* MS Works Suite 2000, Boston Acoustics speakers with subwoofer, Canon inkjet printer, digital camera. $2,499, VR 11.76 (+5% since 7/2000, +31% since 4/2000).

## November 2000

The standard configuration includes 64MB SDRAM, 24x or faster CD-ROM, AGP graphics accelerator with 16MB display RAM, V.90 modem, a 15.7-16.1" (viewable) display (called 17" by some makers), and wavetable sound with stereo speakers. "Pluses" and "Minuses" are shown where applicable, along with hard disk size, software, extras, and brand-name speakers.

Top system prices are taken from corporate Web sites for Dell, Gateway, and Micronpc. In all cases, other systems represented inferior value.

- **Top, Budget:** Gateway Select 1000 Digital Music PC: Athlon-1000, 40GB HD. *Pluses:* 32MB graphics RAM, CD/RW drive. *Extras:* MS Works Suite 2000, Boston Acoustics speakers with subwoofer, network adapter. $1,599, VR 15.34 (+19% since 8/2000, +34% since 5/2000).
- **Top, Midrange:** Gateway Select 1100: AMD Athlon-1100, 60GB HD. Like Budget, but with DVD-ROM instead of CD/RW drive. $1,999, VR 15.64 (+42% since 8/2000, +52% since 5/2000).
- **Top, Power:** Gateway Select 1200: AMD Athlon-1200, 60GB HD. Like Midrange, but with 128MB SDRAM, 18" display, and 64MB display RAM. $2,499, VR 13.51 (+32% since 8/2000, +47% since 5/2000).

## December 2000

The standard configuration includes 128MB SDRAM, 16x or faster CD-ROM, AGP graphics adapter with 16MB SGRAM, V.90 fax/modem or 10/100 Ethernet adapter, wavetable sound card, speakers, and a 15.6-16" (viewable measure) display. "Pluses" and "Minuses" are shown where applicable, along with hard disk size and software. Top systems taken from company Web sites.

- **Top, Budget:** Dell Dimension 4100 Pentium III-866: Pentium III-866, 20GB HD. *Minuses:* 64MB SDRAM. *Extras:* MS Works, Harman/kardon speakers. $1,049, VR 15.97 (+22% since 9/2000, +19% since 6/2000).
- **Top, Midrange:** Gateway Select 1100: Athlon-1100, 60GB HD. *Pluses:* DVD-ROM. *Extras:* MS Works, Boston Acoustics 3-piece speaker system, home networking. $1,999, VR 15.64 (+32% since 9/2000, +42% since 6/2000).
- **Top, Power:** Micronpc Millennia Max XP: Athlon-1200, 80GB HD (two 40GB drives with RAID). *Pluses:* 18" display, 64MB display RAM, DVD-ROM. *Extras:* MS Office 2000 SBE, Altec Lansing 3-piece speaker system, CD-RW, Ethernet. $2,699, VR 14.71 (+26% since 9/2000, +30% since 6/2000).
- **Other, Budget:** Tiny Athlon 900: Athlon-900, 45GB HD. *Pluses:* DVD-ROM. *Extras:* Altec Lansing 3-piece speaker system, CD-RW. $1,599, VR 16.49 (+13% since 9/2000, +31% since 6/2000).
- **Other, Midrange:** Tiny Athlon 1GHz: Athlon-1000, 60GB HD. Like Budget system in all other respects. $1,899, VR 16.22 (+39% since 9/2000 and 6/2000).

# Press Watch I: Articles Worth Reading

Heuer, S. (2000), "*Fast Company* loves you," *The Industry Standard*, Vol. 3 No. 23, pp. 198-201.

I was delighted to read one of the senior media analysts comment that *The Industry Standard* might be the only new-business magazine worth reading. So far, that's been my experience (but I've only read one issue each of *Red Herring* and *Upside*), particularly after trying to plow through two issues of the abysmal *Business 2.0*. *Fast Company* was a peculiar situation. American Airlines has some odd partnership with the magazine and started sending it free to AAdvantage very frequent flyers who book tickets on AA.com. I was intrigued by the first couple of issues, but also slightly taken aback by the slightly cultish air of some of the articles. Over the next two months, I found the tone increasingly tiresome, as well as the tone (typical of most new-business magazines) that Business Is Everything. I asked AA.com to cancel the subscription.

That made this little article particularly fascinating. A reporter from *The Industry Standard* visited a "RealTime event," one of *Fast Company*'s in-person events. His reporting is entirely consistent with the tone of the magazine: as much movement as magazine, pushing a "community" of people who believe in the magazine's philosophy. Indeed, the magazine has 130 local discussion clubs called "Company of Friends." These people all expect to be the next great CEO (or "change agent," in *Fast Company*'s terms), and there's more than a little sense of tent revival.

The underlying theme here is speed, and the idea that there's no time for anything but the bot-

tom line. Everyone's busy building "the brand of You" and even raising children and charitable work become Projects. When one panelist declares "Too many people have a vested interest in reality," the audience cheers.

Thor Ibsen, head of Ford's e-business consumer group, answered a key question in a way that says all I really need to know about *Fast Company*. The question: "What's [your insight] after listening to [various] ego-boosters and participating in a discussion about the pace of change?" As Heuer reports it:

> Ibsen checks his watch, screws the top back on his Diet Coke bottle and says: "There's not enough time in my life for introspection."

I finally decided there wasn't enough time in my life for *Fast Company*.

Couzin, Jennifer, "The real world," *The Industry Standard* 3:33 (August 28, 2000), pp. 96-8.

This article has no direct relevance to libraries, but considerable indirect relevance. It discusses Gazoontite.com, an online store selling products to relieve allergy and asthma. It got millions in funding, laid off almost half its staff last spring, and did badly enough for its founder to step down—but that's not the story.

The story is a small group of stores: four so far, with another 20 planned by the end of 2001. The stores are doing just fine: profitable and showing higher sales volume (measured in dollars per square foot) than most specialty shops. "Although the average amount spent per visit is roughly the same—about $100—customer acquisition is far cheaper in a brick-and-mortar setting than on the Internet."

The real world has staying power. Gateway, the pioneer in these lines, understands that. At first, Gateway (then Gateway 2000) worked strictly by phone; their Web site opened in 1993. Gateway sells billions of dollars worth of computers on the Web and by phone, but in the last two or three years the company has added more than 300 Gateway Country Stores, showrooms that let you play with the computers and determine which configurations suit you best. (As I've said in previous notes, I spent *hours* in the local Gateway Country Store in early 1999 before deciding on the 18"-viewable Trinitron display for my computer.) Gateway's also adding Gateway Country stations in OfficeMax stores.

Worried about the virtual world taking over, making your library irrelevant? Find something better to worry about—there's no shortage.

Zetter, Kim, and Harry McCracken, "How to stop searching and start finding," *PC World* 18:9 (September 2000), pp. 129-43.

The most knowledgeable articles on search engine performance may appear in *Online*, but less sophisticated articles such as this one reach many more readers. This article combines a wide-ranging discussion of different kinds of search sites with some objective tests of twenty search engines. The writers ran an identical series of queries on each site, considered what they found, then arrived at two semi-statistical measures. Both measures involve only the first ten results on each test search, which makes them a bit suspect. One measures relevance, the other broken or duplicate links.

The writers assert that "relevance isn't an issue" for directories such as Yahoo, Open Directory, and LookSmart; I would be less inclined to assume that every site in a category is relevant to that category. Some of the statistics are a little surprising: DirectHit yielded a mere 55% relevant links and Lycos an abysmal 45%, while the well-regarded Northern Light had a mediocre 60% and HotBot only 67%. Two search engines did very well on this test: AltaVista with 92% and the Best Buy for search sites, Google with 100%. (That surprises me. As good as Google is—and it's my starting point for searches—100% still seems too high.) AltaVista breaks down somewhat on broken links, with 7% broken or duplicate, but Google is the only search site with no broken or duplicate links among the top ten results. (They assert that neither Yahoo nor Open Directory had any broken links: that doesn't match my experience.) Worst on this measure are, once again, Lycos with 17%, then LookSmart with 15%, and Excite and FastSearch tied with 13%: none of the others had more than 7% link problems. Open Directory gets the other Best Buy, as a directory site; since it's the directory attached to Google, that further strengthens Google's hand. But then, Google is now the Web search engine for Yahoo: life is complex in the Internet search field.

The list of Search Superstars may be more useful than the Best Buy awards. They recommend Google as a starting point for searches and Open Directory as a directory, of course, but also MetaCrawler as a metasearch engine, InvisibleWeb as a "specialty directory," and AskMe.com as an expert site.

Then there are the two photo inserts with quotations from real users. One, a screenwriter, is "pretty faithful to AskJeeves.com," claims that it checks loads of different search engines, and asserts that you can pose questions like "Who was a better artist: Sid Vicious or Cyd Charisse?" The other, a network consultant, starts out with HotBot, goes to MetaCrawler for category searches, and "drills down" using AltaVista. I guess that only insiders know about Google and Open Directory: such is life.

Postscript: I couldn't let that AskJeeves claim go, particularly since I've found that site to be worthless for my purposes. So I asked precisely that question. The results? Here they are, in all their glory:

- What movies and/or TV shows has [Cyd Charisse, and a pull-down menu with lots of "C" entertainers] been in?
- Where can I find fan pages for [Cyd Charisse, and a menu with some other "C" entertainers]?
- Where can I see the works of the artist [Abraham van Beyeren – Ernst Ludwig Kirchner and a list of others]?
- How can I get fit?
- Where can I find information about the life and works of the photographer [Agnes Varda and a pull-down list]?
- 8 matches by 4Anything Network, beginning with "4Alternative.com > Alternative, MP3s, alternative music, ban"
- 3 matches by Mamma.com, all of them Cyd Charisse fan pages
- 8 matches by AltaVista, beginning with "E! Online – Credits – Cyd Charisse"

My own conclusion is that you can ask the kind of question the screenwriter asks, but you won't get useful answers—unless, of course, the total lack of Sid Vicious within the pull-down menus is, itself, an indication that Cyd Charisse must have been a better artist. I will bet that reversing the order of the question would give just the opposite result. The "Abraham van Beyeren" and "Agnes Varda" possibilities go way beyond my simple intelligence: short of random assignment, they make no sense.

Glass, Brett, "Overcrowded airwaves," *PC Magazine* 19:18 (October 17, 2000), pp. 94-6.

Wireless everything may sound wonderful—but much of this new activity takes place within a narrow slice of the radio frequency spectrum. Collisions are already problematic and likely to become more so. This article offers readable, detailed information as to the problem and current solutions—and why solutions reflected in new hardware won't really solve the problem.

Cohen, Hal, "Invisible cities," *The Industry Standard* 3:39 (October 2, 2000), pp. 80-4.

Read this article, particularly if you're still worried about public libraries disappearing as we all abandon cities. That second part was a steady theme within the "literature of the new economy," as Cohen terms it. Alfin Toffler had us abandoning urban society in favor of electronic cottages (his term). John Naisbitt waved goodbye to the "abandoned cities" of industrial America in the 80's. In the 1990s, Negroponte assured us that technology "will remove the limitations of geography" (this from a man who spends half his life on airplanes), George Gilder called cities "leftover baggage from the industrial era," and William Knoke (one I've missed) enthused over the "age of Everything-Everywhere," a "placeless society in a spaceless world."

Not so, of course. Want to be part of the new media or biotech? You'll either be in a big city or in Silicon Valley's multi-town equivalent. The arguments for the death of cities continue to make theoretical sense (and enchant the pundits), but the world works differently. Some academic urban planners are seeing that the future is more likely to embrace both cities and decentralized operations. Gilder continues to preach his decentralized gospel, but preaching doesn't make it so.

That's just a taste of a fine, thoughtful article. The article doesn't oversimplify the situation in the other direction. Certainly some cities will become even weaker, and the overall flow is toward complexity. Meanwhile, quite a few distressed urban centers are coming back to life, aided by the trend away from heavy industry toward the kind of business that can improve urban life and health.

Part of the anti-city theme was that we'd all be telecommuting. That's worked out oddly, particularly for the professions presumed most amenable to telecommuting. It turns out that bright people working together *in physical proximity* come up with a lot of ideas and refinements that don't happen when they're burning up the wires from separate locations. That's one reason business travel and conference attendance continues to increase; it's also why telecommuting among "knowledge workers" seems likely to be less than universal.

Lessig, Lawrence, "Copyrights rule," *The Industry Standard* 3:41 (October 9, 2000), pp. 51-3.

Lessig, a professor at Stanford Law School, is always thoughtful and frequently refreshing. This brief essay makes the point that the courts have been awfully quick to protect Hollywood's intellectual property rights, even while they've been so slow (properly) to act on issues of pornography. Lessig doesn't call for more crackdowns on porn; he does suggest that the speed of injunctions on such matters as MP3 and deCSS is unseemly. Read the essay; think about its implications. The good news is that, as Lessig notes, all of these battles will eventually wind up in the Supreme Court, and that court tends to get this sort of balance right.

Furger, Roberta, "Virtual spying," *FamilyPC* 7:11 (November 2000), pp. 86-9.

With one exception, this is a thoughtful discussion of how parents should approach their children's use of the Web. It's easy enough to set filter software so that it logs all the sites that a kid visits, and you can even set up software so that you can watch from another PC while you're kid's online. But is that a sensible practice?

I'm not a parent, but it's hard to argue with Michael Brody's comment: "The less trust we have in our children, the less trust they will have in themselves." Brody is a practicing child psychiatrist and chairs the Television and Media Committee of the American Academy of Child and Adolescent Psychiatry; he thinks that software monitoring and logging erodes trust.

So far, so good—and parents certainly have the right to install filtering software on their own computers (which presumably includes those of their children). But the paragraph on software filtering quality dismisses problems a little too abruptly. Here's the entirety of any doubts as to filter effectiveness: "Although the products have long been criticized by civil liberties groups for their tendency to block legitimate educational sites along with the porn and hate sites, many media advocates and child-development experts acknowledge the usefulness of these software tools." That's it.

Presumably "media advocates" includes such acknowledged experts as Dr. Laura and Rush Limbaugh. But it's not just those wacky civil libertarians who criticize filters; that group includes almost anyone who's done any objective testing of the filters. You all know this, but just to repeat the obvious:

- No software filter can block all so-called "porn" and "hate" sites, period—except by being an inclusionary filter that only lets you go to specific sites. That's not a filter; that's a circumscribed Web with no room for growth.
- Every software filter blocks inappropriately, usually egregiously so. The cleverer the algorithm for blocking sex and hate, the higher the number of legitimate sites wrongly blocked.

It would be perfectly appropriate for Furger to provide a shorter version of those simple truths and go on to say that parents *still* may want to use filters for younger children, understanding their flaws. Dismissing the flaws with the quoted sentence is sad; in the past, Furger has typically shown signs of knowing better and caring enough to clarify issues.

Nickell, Joe Ashbrook, "Home on the Web," *The Industry Standard* 3:43 (October 23, 2000), pp. 122-36.

This insightful piece of journalism reveals the tricky truth of Internet-connected refrigerators and that sort of nonsense. These products aren't being introduced because consumers demand them or because they meet any known *consumer* need.

Connecting every possible aspect of home life to the Internet does indeed meet a need: the need of Cisco and similar companies to keep selling infrastructure. PCs aren't enough, particularly since it's becoming fairly clear that almost every U.S., Canadian, and European citizen who has much use for a PC already owns one. More wiring for businesses? That's a tough market, almost saturated.

Michael Wolf of Cahners In-Stat notes the problem: "It's a push market trying to create a pull market. You need infrastructure for these services, but there won't be demand for infrastructure until there are compelling services."

What services are these, and why would they be compelling? Jared Headley of Cisco gets excited about the possibilities in Cisco's model Internet home. "I may never care that this dishwasher is connected to the Internet, except once. But that one time, seven years down the line, when I get an alert on my pager that says I've got sudden water pressure loss and I'm two states away on business, that's when I care a lot. I can drop a message to the repair guy at Sears, he shows up at the house, I can open the door for him remotely, he fixes it and my floor's dry by the time I get home." You'll pay extra for the dishwasher, for the wiring to connect it to your home network, and for the full-time Internet connection—and, of course, for remote actuators so you can "open the door for [the Sears guy] remotely."

If that scenario strikes you as far-fetched, then this dream of the future is in trouble. If you think it sounds great, then I'm seriously out of touch. Personally, I can't imagine any circumstances under which I'd "open my front door via e-mail," as one sidebar suggests. And when IBM asked for focus-group reactions to the idea of dishwasher repairmen turning up because the dishwasher contacted the shop, consumers hated the idea. Surprise, surprise!

One pull quote raises the question I rarely see raised in gung-ho pieces about the all-connected home: "Will we ever really need our fridge to e-mail us that our milk is past its prime?"

IBM thinks it can disguise all this new technology so it feels familiar. As the writer says, "So what will people call the Internet fridge? If it's to succeed, it will be simply the fridge." Which begs the question: then why does it need to be an Internet fridge?

# The Convergence Chronicles

Antonoff, M. (2000), "ReQuest Multimedia AudioReQuest ARQ1 digital music system," *Stereo Review's Sound & Vision*, Vol. 65, No. 6, pp. 71-4, *and* "Hard disk wars," same issue, pp. 103-6.

Why on earth am I citing two articles in a hi-fi magazine (or a home theatre magazine)? Because they shed a little light on some of the nonsense going around about compressed digital media. Before moving to the specifics, a little background may be useful for those of you who don't read what used to be called "stereo magazines." The magazine with that lengthy title has *not* been around for 65 years. This magazine appeared a couple of years ago as the survivor to *Stereo Review* and, I believe, *Video* (or some similar title); *Stereo Review* succeeded an earlier pre-stereo magazine that *does* go back 65 years. I suspect that "Stereo Review's" will fade away from the cover over time, leaving *Sound & Vision*. This is the big-circulation mainstream stereo magazine; it's regularly derided by "high-end" magazines such as *Stereophile* and *The Abso!ute Sound* (no, the exclamation point isn't a typo) for its "objectivist" perspective and tendency to assume that you don't need to spend a fortune on your sound equipment. In other words, *Sound & Vision*'s writers *do* assume that most well-made amplifiers sound the same (within their power limits) and that most CD players deliver nearly identical results from an audible perspective.

That's the background. The specifics here are reviews of two different "convergence" products, both of which use massive hard disks and computing power to serve up entertainment. In both cases, you're giving up quality to gain convenience, despite the allure of digital media.

The first, the $800 AudioReQuest, uses a 17GB hard disk and a CD drive to convert and store MP3 files, which it then offers up as a jukebox holding up to 320 hours of music. But you only get 320 hours of music if you record at 128kbps compression rate—the rate too often called "CD quality" in the press. Antonoff noted that his recordings at that rate just didn't sound like the originals—"you can't expect CD-quality playback over even moderately good speakers." He tried it again at the maximum encoding rate: 320kbps, which reduces total capacity to 120 hours. "This time, the MP3 sounded closer to the CD original, but it still came up short."

The lab tests show why, rather dramatically. For one, the unit was remarkably mediocre as a CD player, with a dropoff of response in the last half-octave of bass and noise levels *much* higher than typical cheap CD and DVD players (and quite audible in the auditions). That's without any encoding. The good news about the MP3 versions is that the noise was no worse—but frequency response only extended to 7.8kHz. That's a long way from the 20kHz that any CD player should handle, and even a fair distance from the 15kHz limit of FM. The lab also found substantial distortion at high frequencies.

The second article reviews two "PVRs," the units that go under Replay TV and TiVo labels. These are both second-generation units from respectable names: Panasonic's $700 PV-HS2000 ShowStopper includes a lifetime RePlayTV listing service, while Sony's $400 SVR-2000 Digital Network Recorder uses the subscription TiVo service (but if you buy a $199 lifetime subscription, you still come out cheaper). Each includes a 30GB hard disk and offers multiple speeds for most recording, ranging from roughly 1GB per hour to 3GB per hour. Both use real-time MPEG2 compression and decompression, and are designed to be used constantly (the Sony runs all the time unless you pull the plug), imposing a tiny lag in "live" television viewing.

That lag enables one of the hot sales pitches for these devices: you can pause live TV if there's an interruption, and catch up by skipping commercials when you come back. (Or you can habitually start watching hour-long shows 20 minutes in, skipping commercials to compress the viewing experience.) Both units record at the highest possible speed to a current-show buffer until you change channels or run out of space. (The Panasonic will use all available space for its buffer; the Sony allocates half an hour—but, because the Sony is *always* on, you can get home late and still catch your favorite show.)

When PVRs first showed up, with the typical analyst projections that they'd sell billions and billions and certainly wipe out VCRs within a year or two, I prepared an essay that questioned the probable video quality of real-time MPEG2 compression at 1GB-per-hour data rates. I bounced that essay from issue to issue until finally abandoning it—and I was never able to test my hypothesis, because I could never get a store to actually *use* a PVR for anything but its promotional loop. You should understand that, when I do watch TV, I'm a little choosy about video quality: my wife & I have always owned S-VHS rather than VHS recorders because we (she, particularly) would not tolerate the quality loss in-

herent in VHS time-shifting. S-VHS offers about 60% better video quality than VHS, just a little inferior to well-prepared DVD; for time-shifting, we can't tell the difference.

I didn't believe that would be true for real-time MPEG2 at 1GB per hour. DVD uses almost 2GB per hour, but more importantly, DVD uses two-pass compression, measuring the changes in a film to determine where more data is needed. I've learned to believe in miracles where video compression is concerned, but this one seemed a bit unlikely—and I assumed that the glowing reports from PC commentators were based on their being as insensitive to video quality as they obviously are to sound quality.

This test report is the first I've seen in a magazine that actually deals with video, and the results are roughly what I'd expect. If you want S-VHS quality, you use the highest possible data rate—and you get nine or ten hours total recording time, not the promised 30. Unsurprisingly, "live" TV is *always* being recorded at this rate. What happens when you change to a lower speed? In Sony's case, audio quality continues to be as good as TV's likely to deliver (20Hz to 14.5kHz), but video resolution becomes "no better than VHS and the encoding artifacts were far more annoying than on a videocassette." If you want the numbers, video response was down 10db at 3MHz and unmeasurable at higher frequencies. (Digital compression artifacts tend to be additive, whereas VHS losses are subtractive; as a result, they're inherently much more visible and annoying.) The Panasonic did a trifle better on video, but still showed VHS-like response—and its audio performance went to hell, dropping to a 6KHz upper frequency point.

The moral to these stories? The laws of physics have not been repealed. You can only cram so much signal into a small space before the losses start to be audible or visible—and if you care about what you're watching or listening to, ignore the extreme claims of marketers. (Incidentally, this isn't a case of finding flaws because the reviewer didn't like the units; Antonoff praises all three units.)

Lee, Lydia, "Will the future ever arrive?" *The Industry Standard* 3:41 (October 9, 2000), 110-11.

Personal video recorders—TiVo and ReplayTV—are hot items in the press and in advertising. Industry analysts assured us that they would wipe out VCRs in a year or two and would sell faster than they could be manufactured. I wondered about the video quality (for good reason, as discussed above) but had no way of knowing whether the units were indeed flying out of the stores.

The teaser in this article gives the story: "So far, though, consumers aren't buying." The two offerings have been out for more than a year—and only about 100,000 households have DVRs. That means they're doing a lot better than dedicated e-book readers, but a lot worse than projected. More to the point, Replay withdrew its IPO and TiVo's stock is back down to initial offering levels: there's no sense that either company has a route to profitability.

One problem is that the two companies—who don't make the hardware—are subsidizing Philips, Sony, Panasonic, and Sharp: the PVRs cost more to produce and sell than they're selling for, but they're selling at prices that don't appeal to consumers.

How do Replay and TiVo plan to make money when they're losing money on each sale? Think about the answer, given that one use of PVRs is to bypass ads (both units make it convenient to do so): targeted advertising. One company's head says, "We know people will watch commercials they like." The ads can be targeted because the devices track what you watch and report back to the companies. Privacy issues? Only if you care about privacy.

It's bizarre. The companies admit that they're trying to change human behavior, the way we watch TV—and part of the implicit sales pitch is that we really want to watch *more* TV, if only the wonderful stuff that's out there was convenient. So we'll pay a significant sum up front (and possibly per month) to time-shift more conveniently than VCRs, give up privacy in the process, and *not* get one of the few gains you could get from such a device.

As with most households (apparently), we're watching less TV now than we did a few years ago, and don't really want to find more TV to watch. But, of the large handful of network programs we really enjoy, two or three are on directly opposite other programs we really enjoy. In one case, there are three programs on at the same time that one or both of us would enjoy.

DVRs don't help much. They're set up so that you watch all TV through the DVR filter, but you can modify the setup so that you watch one show while the DVR records another—just like the VCR, and this is the easiest possible VCR operation. A DVR will *not* record two programs simultaneously, although hard disk technology would seem to make that feasible, so the three-program scenario is out of the question and you can't combine a two-program scenario with the ability to pause a current program.

Replay's CEO says that people are eager to watch TV and "desperately searching for something good on it." Maybe not.

Somers, Asa, "Media merger," *Computer Shopper* 20:11 (November 2000), pp. 186-92.

"The convergence of the Internet, the PC, and television are making your PC more entertaining and your TV more interactive." That's the lead, and a little later we learn that "Most industry observers agree that television is generally becoming more interactive." What does interactive mean? Apparently not WebTV—both because it doesn't work all that well and it's really putting the Internet on a TV set, not making TV interactive. At least one industry analyst has the smarts to see why true convergence may never happen: watching TV is a "lean-back" experience while actually using a PC is a "lean-forward" experience. One encourages relaxation; the other encourages true interaction.

Here's an interesting claim: "For most people, the television will remain the natural information portal." I will assert that, for anyone who reads a daily newspaper, at least the equivalent of a weekly magazine, or the occasional nonfiction book, television is not the "natural information portal." Entertainment, maybe; information, hardly.

But apparently we're all anxious to surf the Internet *while* we're watching TV. Why? To "enhance" the TV-watching experience—by playing games, seeing extra statistics for live sports, or (you know it's coming) *buy stuff* that you see on TV. That's how they do it in Britain, if you believe this article: people see a translucent watermark on the screen, click on it, and order Ally McBeal's dress or Frasier's tie. Heaven!

Spanbauer, Scott, "That's (digital) entertainment!," *PC World* 18:11 (November 2000), pp. 52-8.

Can one brief article cram in all of the snap judgments and inevitabilities of "digital everything"? This one certainly tries. Start with the teaser: "Welcome to the revolution: Digital movies, books, and music are coming direct to your home by way of your PC." Learn that the real obstacles to this inevitability include "book publishers afraid that this revolution will mean the end of their old ways of doing business." See good-quality MP3 encoding called "160-bit" and "192-bit" (which, in both cases, probably means "Kbps" rather than "bit," an understandable error anywhere *except* a technology-oriented magazine).

You'll probably pay for your music by subscription. You need DSL or cable to stream video that "looks as good as what you see on TV." "You can already copy VHS tapes by using two VCRs," which will come as a considerable surprise to the Macromedia people.

A sidebar on electronic book readers says that the current ones are too small and that there's not much of a selection; it doesn't say a word about type quality or other ergonomic issues. (The conclusion, "they're unlikely to replace the printed word anytime soon," is on the money, but it's an oddly disjointed discussion.) The main article says "So far, for reading, many people still prefer old-fashioned paper of a PC screen or a handheld device," but goes on to show how that little obstacle will be overcome. "Many" seems to mean "99%+" at this point, but that's being picky. Another sidebar shows one problem with downloaded music: Sony, for example, is selling single songs for $2.50—and you're not getting full CD quality.

It's the final paragraph that gets stupid, though, if only because it blandly generalizes from an overstated single case. "Noting is going to stop the digital entertainment revolution, because we've already decided that we want to use the Net and our PCs as a media conduit. We will still read books made of paper, buy CDs, and go to the movies. But we want our MP3s—and we're going to get them." In other words, "some people are avid MP3 thieves and some others even pay for them—therefore, the "digital entertainment revolution" is inevitable."

# Press Watch II: Commentary

Solomon, K. (2000), "Customer disservice 2000," *Industry Standard*, Vol. 3 No. 27, p. 234.

Help! If you're using some of the Web's most popular sites, don't expect an answer to that plea. For the second year in a row, *Industry Standard*'s "secret shopper" asked for reasonably simple help from ten top shopping and other Web sites (all among the fifty most popular sites). Solomon's overall finding is that customer service, lousy last year, is even worse this year.

Four of the ten companies failed to provide any response within three days. Many of the sites expect you to read through FAQs and customer message boards—but it's shocking to ignore e-mail entirely. Amazon.com responded in half an hour last year; this time, no reply. Ebay took 97 minutes a year ago—but that's better than this year's failure.

It isn't all bad news. AOL.com Shopping provided a clear response in 45 minutes—about the same as in 1999. Lycos Shopping managed to respond in 24 minutes: the response was "automatic

but helpful." NBCi.com provided a useless boilerplate response after 80 minutes—but the response came from Snap.com and never mentioned NBCi.com!

That's about it for prompt responses. MSN Shopping took almost 14 hours later to provide an unresponsive reply; nobody else managed a reply on the same day.

## "The Internet is paid for by banner ads."

That's a direct quote from Rick Inatome, CEO of ZapMe!, in an August 2000 *FamilyPC* article on ad-supported classroom Internet access. You may not be surprised to know that ZapMe! "provides free Net access and lends PCs to about 2,000 schools nationwide"—and pays for that "free" access with "ads, and lots of them" (according to the article). Students who use ZapMe! must provide age, gender, and zip code: not only do you get ads, you get *targeted* ads.

I suspect that a lot of universities, companies, ISPs, and people who pay for their accounts will be surprised to hear that banner ads pay for the Internet. Even the Federal Government, which created the Internet through its DARPANET work, might question that assertion. Inatome goes on to say, "To think that you're going to have the Internet in schools without ads is silly." This will particularly please the RBOCs and other companies paying FCC-required amounts to *subsidize* Internet access for schools and libraries.

The article quotes a teacher from a town near where I live. He was frustrated because his classroom computers were outdated—so now he has wonderful new computers. "It's been really wonderful. You almost don't even notice the advertisements." I find that sad and a little appalling. Or maybe it's just a part of contemporary education: bring the children up to be good ad-saturated consumers, believing that ads are *properly* part of all aspects of life. We even get so-called theoretical librarians urging libraries to embellish their own Web sites with in-house banner ads. Presumably, banner ads somehow legitimize Web sites?

Yes, banner ads pay for significant portions of so-called "content" on the Web, and that's fine with me. But banner ads do not pay for the Internet, and children's minds should not be up for sale while they're in class. Nor, for that matter, should library Web sites have banner ads, any more than they should have blinking text or animated logos.

Blackford, John, "Print and Web: working together," *Computer Shopper* 20:9, p. 84.

Based on the first two-thirds of this editorial column, I would put it in the other Press Watch section: it's a sensible discussion of the ways that Internet companies are rediscovering the power of print. That's sad. One way that the Web *should* save paper is by eliminating some catalogs and other junk mail—but dotcoms are now printing *new* catalogs.

The problem is in the last couple of paragraphs, where we get the usual "Web as universal medium" nonsense. First, he says that the Web will coexist with other media—but then he says that it will incorporate all of the others. "That's why the Web is rediscovering print, soon to be the only non-wired media platform." If "non-wired" means "doesn't require electricity to use," OK. But I think Blackford is saying that broadcast TV, CDs, DVDs, and all the rest are toast: all media except magazines, newspapers, catalogs (and books, which he doesn't mention) will be on the Web. I don't buy that. Hmm: the absence of books as a medium may be telling—after all, they don't carry advertising, and *Computer Shopper* is 100% about buying stuff.

Walsh, S. (2000), "Oxygen loses some of its air," *The Industry Standard*, Vol. 3 No. 32, pp. 61-3.

Have you heard of Oxygen Media? Did Oxygen pop up unexpectedly on your cable service, as it did on mine—with a hard-to-fathom mélange of programming and no listings in *TV Guide*? The company started a cable network and a network of Web sites simultaneously with this startling slogan: "A Revolution Led by Women and Kids." The outfit raised $300 million; Oprah Winfrey and Paul Allen were involved; Candice Bergen hosts a talk show. The founder, Geraldine Laybourne, previously created Nickelodeon.

A special question for women readers: how much time do you spend at The Read, Ka-Ching, Picky, BeFearless, Moms Online, Pulse, or any of the other Oxygen.com Web sites (there are 15 in all)? Do you believe that, as Laybourne says, "There are commonalities that will knit all women together"?

This brief article is worth a quick read. One problem is that the question may not be, "Do woman-oriented Web sites and cable channels make sense?" but "Do *several* of each make sense?" In June 2000, Women.com drew four million unique visitors; iVillage drew 6.1 million; Oxygen's sites drew some 1.3 million. Lifetime, which *is* carried in *TV Guide*, is available in 73 million households to Oxygen's 11 million.

Maybe Oxygen should start a magazine. A magazine oriented to women: what an original idea! No competition there.

Grimes, Brad, "Best of the Web," *PC World* 18:8 (August 2000), pp. 100-110.

Why do magazines do articles as bizarre as this one? The editors divided all of the Web into four categories, then divided each of those into eight subcategories. Then, after considering "dozens of great sites," they established the two best sites in each category.

That's silly enough. What constitutes "best"? Here are the criteria: ease of use, breadth of content, "usefulness versus the Real World," and "gee-whiz factor." In defining "usefulness versus the Real World," the writers use this marvelous example: "Is a given search engine a better way of finding data in a sea of sources than, say, your local library's card catalog?" So here are more journalists who apparently haven't been in a good public library in the last five years. Ah well…

The four major categories are e-commerce, information, services, and recreation. There's a category for personal Web pages, but it features two sites that let you build Web pages—not the pages themselves. Libraries? Universities? Government sites? Of course not. You can probably guess the total number of the "64 best sites on the Web" that don't end in ".com"—actually, there's all of one: Mayo Clinic Health Oasis (www.mayohealth.org), but they like WebMD.com better.

It's bad enough at this point, but it gets worse. After choosing the *absolute best Web site in the world* in each of 32 arbitrary categories, they do *faceoffs* in a bizarre "tournament of Web champions." Thus, Expedia.com (travel) beats out PC Connection (personal computer hardware and software), but Amazon.com beats out Expedia. IMDb (the International Movie Database) edges out Salon, but is in turn stomped by ESPN.com. But then, in the next round, Homestead (a Web-building site) wins out over ESPN.

This silliness culminates in the final two rounds. In the first semifinal, EBay edges out Homestead while Yahoo gets past Britannica.com. And the big winner is: EBay, The Best Site on the Web. Hokay.

I didn't run my set of Web metrics on these sites. Were it not for the ludicrous "tournament," I might have done so—but this article turns into a parody of the generally stupid idea of choosing the Web's best sites. What a neat idea, though: "my Honda Civic beats out your Philips DVD player, but El Paso Café gets the nod over the Honda Civic as the Best Object in Mountain View." That makes just as much sense as *PC World*'s tournament.

Johnson, Cory, "Semi-tough," *The Industry Standard* 3:33 (August 28, 2000), pg. 79.

If it's not already obvious, I have considerable respect for *The Industry Standard*, both as a source of good information and as a great springboard for miniature essays. I don't know of any other "new economy" magazine with a "Flatliner" section heading (dealing with dot-coms that are gone or going under), and few others offer as much criticism of the field they're devoted to. But *The Industry Standard* has its share of peculiarities as well, as this particular column indicates.

The subtitle says "There's one big reason semiconductor sales are still coming strong—it's the Internet, stupid." The analysis goes on to discuss new demands for semiconductors. "And chief among those new demands is the Internet and its many products: digital cameras, Internet-equipped mobile phones, handhelds like the Palm." Later in the article, a source mentions "upgrades from VCRs to DVD players" and again mentions digital cameras.

When did the Palm and DVD players become Internet products? When did digital cameras become Internet products? For that matter, is it *really* the case that mobile phone sales are driven by Internet access? Or is this the kind of market-building by definition that distorts so many projections: "the Internet touches everything" much as public libraries touch everything—perhaps at three or four removes, but that's life.

Blackford, John, "No requiem for Moore's Law," *Computer Shopper* 20:10 (October 2000), p. 76.

Blackford may be *Computer Shopper*'s editor-in-chief but he fancies himself a seer. This one-page wonder tells us why we should look forward to 20 more years of rapidly improving CPU power, telecommunications bandwidth, and demanding applications. For boring old applications, to be sure, hardware passed software two or three years back—but that's about to change.

We'll see "widespread use of virtual personalities in all kinds of man-machine interfaces," but that's just near-term. A little while later, we'll have real-time translation, "Web-linked e-paper and advanced medical diagnostics." And by 2020, machine capabilities will "begin to overlap human ones."

Here's where it gets interesting, and where déjà vu started to set in big time. "By 2020, computer and communications technology will be embedded everywhere, not just in toasters and televisions, but

also in floors, sidewalks, and roads. And these entities will be constantly connected to the Web."

Smart roads (presumably making sure that smart cars don't crash): that's been promised for decades, and all it would require, really, is a government effort to rebuild every highway and road: trivial stuff. Of course, systems like that require ever-larger amounts of completely reliable electrical power, but we all know that fuels and other energy sources are unlimited and run over entirely reliable nets.

The most remarkable statement may be the last one: all of this wonderful new technology will be connected to "the Web," which says that, with everything else changing in revolutionary ways, there will be no fundamental changes in communications protocols between 1995 and 2020. Constancy: isn't it wonderful?

Raskin, R. (2000), "Being smart, Internet style," *FamilyPC*, Vol. 7 No. 7, pp. 61-3.

The best part of this essay is the teaser: "The smart people in the '00s won't be the ones who know everything. They'll be the ones who know where to find what they need." Of course, that's equally true for the 1990s or 1980s. It's what a good college education is all about, and may mean that reference librarians are, effectively, the "smartest" people on earth.

It's all downhill from there—because Raskin is a true believer, one who apparently believes that everything worth knowing is on the Internet. Then again, she starts out with bad examples of what she did and didn't learn: "while I knew all about pi, I can't say I had a feel for what it did." Pi doesn't do a heck of a lot, and it's hard to see how you could "know all about it" without knowing its sole use: to express the relationship between the diameter of a circle and its circumference. That's all it does. But then, that's math stuff (geometry, actually).

Now, Raskin says, "knowledge resides online"—a terrifying phrase all by itself. How does Raskin approach this "knowledge"? Like "all" of us, according to her: "We've all caught ourselves beginning an online search for one thing and finding ourselves, hours later, down a completely different path." We have? Speak for yourself, Ms. Raskin.

You get a whiff of Raskin's absolutism when she says, "Internet time is measured in 24/7," by which she means we must be "wired all the time," with the Internet being "an around-the-clock cornucopia for doing it all." But she says smart people will figure out when to have someone else do it instead, as a "matter of self-preservation." She thinks smart people will "need to understand the dangers of living in an all-connected, all-the-time Internet world" and "adjust to it in order to survive." After all, we'll all have Web-equipped cars, pocket-sized PCs, and Internet wristwatches (which are "now a reality"). Raskin seems to assert that it will be *impossible* to disconnect from the Internet. Instead, we'll have to "manage the pace of a faster and faster lifestyle."

Here's where it all falls apart, precisely (I think) because Raskin ignores everything except the Internet. "Smart people will be able to synthesize information faster." Synthesis is a fairly rare skill. Why do we all need it? Because "most of what's on the Internet is doled out in cyber-bits: pages instead of books, movie clips instead of movies, in short paragraphs and sound bites." In other words, instead of dropping off the Internet and reading a book (where someone else has done the synthesis), you have to do it yourself—because everything's on the Internet but it's all in little chunks.

It's a classic case of working backwards from the inevitable, absolute, foreordained conclusion. All knowledge is on the Internet. But it doesn't come as knowledge; it comes as paragraphs (most of which are useless or false). Therefore, since we can't be bothered with such old-fashioned trash as books or magazines that run articles more than a few paragraphs long, we must all be able to synthesize on the fly. Given that we count on our "built-in Internet lie detectors" to determine which paragraphs are worthwhile, this is a truly dystopian perspective.

Later in that issue, Roberta Furger offers a list of "25 boredom busters" for kids during the summer. While many of these rely in Internet sources, they also involve real-world activities, taking time to create and work with people, and other skills that would seem to be obsolete in Raskin's Internet Reality, such as planning block parties, exploring the night sky, birding, taking hikes, visiting bookstores, or discovering famous writers at (gasp) the library. How do people have time for such pursuits in the all-connected 24x7 Internet world? Because some people (parents and children alike), such as Roberta Furger, get past the hype to offer perspective. Now there's a smart woman.

## Product Watch

# AppleWorks 6: Curiouser and Curiouser

ClarisWorks had a fine reputation as an entry-level "office suite," providing strong competition to Microsoft Works. Before it was ClarisWorks it was AppleWorks, and it became AppleWorks again when Apple reabsorbed Claris. AppleWorks 5 (essentially identical to ClarisWorks 5)

had a strong reputation for speed, ease of use, integration, and modest disk and RAM footprint. It also offered strong compatibility: translators allowed it to open files from Word and Excel and, typically, save files in those formats.

No longer. AppleWorks 6 can read and write AppleWorks and ClarisWorks files, HTML, and plain text. Period. The reason given is that the translators were "old code" (written for the 680x0 CPUs rather than Power PCs) and were stripped out for better compatibility with Mac's forthcoming OS X. Sure, you can spend $100 for MacLink Plus Deluxe—but that's more than you pay for AppleWorks itself.

Additionally, according to Christopher Breen's acid review in the July 2000 *Macworld*, the new interface "emphasizes form over function," with huge buttons on the toolbars and (naturally) far fewer visible functions. You can add buttons—but then you'll be scrolling the button bar horizontally, which means you're better off using menus. For that matter, the new buttons don't show their state. (If you're using Microsoft Word, for example, look at the control bars top and bottom: you'll find certain buttons that appear depressed and, in some cases, lighter in color, to indicate that they're "on.")

This is noteworthy largely because it's from Apple itself, renowned for stressing usability over all else. The new Works interface appears in a screen shot, and indeed the buttons are absurdly large—the button bar appears to be more than three times as tall as the menu bar, and the Tools menu is also oversized. It's as though this was a children's version of AppleWorks accidentally shipped as the regular version. Breen also notes that the program is slower than its predecessor. For now, the message is to stick with AppleWorks 5.

David Pogue finds the tendencies in Mac interface design unsettling, not only AppleWorks 6 but also what he's seen of OS X. He finds the trend particularly disturbing because Microsoft has learned how to conserve screen space. His "Desktop Critic" column ends with a particularly cynical observation, one that I doubt: "Maybe it boils down to a much simpler fact: of the two companies [Apple and Microsoft], only one profits from the sale of bigger monitors." (For those who've been living in a cave, the only hardware that Microsoft sells these days falls into keyboard and pointer categories.)

## Webcams Without PCs

Look at the price, and the Axis 2100 Network Camera seems outrageous: $499 for a Webcam, when you can buy decent units for $100 to $200. But this unit comes with an extra, making that price perfectly reasonable when you need a dedicated Webcam. A builtin Linux-based server chip means that the Axis doesn't need a PC or a server: download a little program to assign an IP address, and you're running. On a T1 connection, *PC World*'s evaluation showed the Axis serving up one to two frames per second of medium-quality 640x480 images—but that's more than enough for some uses. As a security camera or for some other purposes, this little unit could make lots of sense.

## Cordless TrackMan Wheel

Logitech typically makes the best pointing devices in the business. This new device may cost $80 but should suit some right-handed users unusually well. It's cordless (radio frequency, not infrared, so line-of-sight isn't an issue), uses a USB port for the receiver, and has a sculpted shape with a trackball under your thumb. With three buttons and a wheel as well, the unit should offer flexibility and decent ergonomics. I've always found trackballs difficult to use, partly because of the awkward placement. This one—very favorably reviewed in the September 2000 *PC World*—just might be an exception.

## Pocket Espresso PC

Here's an intriguing idea, as described in the October 2000 *Computer Shopper:* a portable computer designed specifically for commuters. It costs $1,128, weighs a pound, and has the form factor of a thick paperback. That price and weight get you desktop power: Celeron-533, 128MB RAM, and a 6GB hard disk, with external diskette and CD-ROM drive.

There is one little drawback: you can't actually compute while you're commuting. This little gem is essentially an all-in-one transfer mechanism: you need to plug in a keyboard, monitor, mouse, and probably a modem to use it—and you plug the box into the wall as well.

You're still paying for portability, to be sure. In the same magazine, Gateway offered the Essential 733 for roughly the same price ($1,199): although it has less RAM (64MB), it's substantially faster (733MHz), includes a larger hard disk (15GB), and includes a 16"-viewable display, name-brand speakers, modem, and MS Works. But you can't drop the Gateway into a backpack to take home with you—and you *can* buy a good 16"-viewable display, keyboard, and mouse for around $300. If you're the only one using a computer at home and at work and you don't plan to use it between, two sets of external devices and one Pocket Espresso look to be substan-

tially cheaper than two comparable PCs—and your projects are always perfectly synchronized.

## DigiScents ISmell

Bwahahah. Oh, stop it, you can't be serious! You want me to add a box to my PC so that I can smell stuff on the Web—mostly ads? How much are you planning to pay me to do that?

I regard this technology as wholly absurd, but DigiScents apparently believes that people will be willing to add a new speaker-size USB peripheral to their computers so that they can smell stuff. Presumably there will also be distribution systems to refill the "100 tiny heated vials of oil" used to create these scents.

Supposedly, Procter & Gamble is testing this technology for possible use with some products on its Web site. I wonder if people will get to the P&G pages using :CueCat (which I discuss elsewhere at greater length)?

David Coursey used the phrase "corporate cluelessness" to lead off a ZDNet article on :CueCat; I think that's a good description of the minds behind DigiScents. But hey, what do I know? I didn't think people would buy into DivX, and I suspected that dedicated e-book readers would not take the marketplace by fire.

## EasyRecovery 5.0

Whoops. You mistakenly erased some files—and you emptied the Recycle Bin, and even the Norton Recycle (if you have Norton). Or, possibly, you managed to trash a disk partition. What do you do now? One answer, if you still have Web access or a good software store is nearby, is to buy Ontrack's EasyRecovery, which you can download for $89 from Ontrack's Web site. According to a *PC Magazine* review (November 7, 2000), it does a good job of finding deleted files and making them whole. The $89 version only works with Windows 95 or 98 (presumably including ME) and with IDE drives. If you use Windows NT or 2000 or SCSI drives, you need the $489 Professional Edition.

## Another Ad-to-URL Technology?

*Computer Shopper* for November 2000 has the latest in a string of technologies that continue to strike me as pitiful wastes of ingenuity: complex ways to avoid asking people to key in URLs but still take them to a company's Web site. This one's from Digimarc, a company with little visible success in selling watermarking technology for digital files. (Maybe they're doing great work and I just don't know it: after all, watermarks *should* be unobtrusive.)

Here's the concept. *Print* ads will have a "hidden watermark in the page" and a small Digimarc logo on the corner of the page. Eager consumers hold the page up to a PC Webcam, and are whisked away to a specific Web page—perhaps a QuickTime demo of the product and an opportunity to purchase it. "Consumers save time because the Digimarc ad takes them directly to the product they want," while advertisers love it because they can track each ad (using a different URL).

Hmm. First you have printed matter that you (the reader) can't see but that any Webcam can see? The human eye can handle a considerably wider color gamut than any camera I know of, particularly the cheap little cameras you'd be likely to mount on PCs—but maybe there's an area of infrared or ultraviolet that will work and that can be printed suitably. Otherwise, we're talking about background noise on the page, "hidden" but probably reducing the overall cleanness of the page.

Then there are the pure consumer conveniences. Consider that you must:

- Have a camera mounted on your PC, presumably running Digimarc's software
- Be connected to the Internet with your browser running (although I suppose the Digimarc software could start it up)
- Either be reading your magazines and newspapers sitting at your PC, or be so vitally enthralled by an ad that you carry the magazine over to your PC, turn on the PC, start the software…

This is actually easier for the consumer than just keying a URL? In what universe?

## Insecure Sound Security

Three pages later in the same *Computer Shopper* is another hot new product, one that makes me think there's something seriously wrong with my home and office PC setups. I think of the home one as a multimedia PC, but I don't have a Webcam attached—and I don't have a microphone on either PC.

ComSense believes that we all do have microphones attached, apparently, so that we can use their wonderful new "smart card" for security and ease. The smart card has an embedded transmitter that sends an ultrasonic signal when the cardholder squeezes a dot; if the PC's microphone has a wide enough frequency range, it receives that signal and passes it on (presumably because there's another piece of background software alongside Digimarc's

watermark-reading software, the iCat scanner software, and so on).

The writeup says that this signal "authenticates the user's identity" so that a site can skip all that password nonsense. "Online brokerages could issue cards to their customers for added security," for example.

Quite apart from the proliferating programs that all these devices require, I don't see that this ultra-beeping card adds security *at all*; instead, it seems to reduce security as compared to an ordinary password. Mislay your Comdot card (that's the product name), and whoever picks it up has instant access to whatever accounts are "protected" by it. Consider one suggested use: "A single squeeze of the card could replace opening your browser and entering a URL, username, and password." Wow! Even if the card didn't have a name on it, you can just try it out—oh look, there's a brokerage account and I'm already logged in!

What am I missing here? The "smart" card has no idea who's holding it. It's like an ATM card with no PIN or a credit card with no signature required—but without the consumer protections required for credit cards. What a wonderful idea.

## Speaking of Sound…

*Macworld* for December 2000 notes Aiwa's $36 HP-CN5 headphones as one of "seven gifts to please everyone on your list." That may be a bit strong, but these are the least expensive noise-cancelling headphones I've heard of. That is, the headphones have small microphones outside each earpiece and make some attempt to counteract environmental noise. Many airlines are adding similar 'phones to their first-class and business-class service; they're not perfect, but they can help.

## Yet Another Sound Idea

The same *Macworld* gives 4.5 mice to an interesting piece of software: the $199 "B4" from Native Instruments, shipped on a CD with both Mac and Windows versions. What's the B4? A software version of the Hammond B3, the classic electromechanical organ that's such a mainstay of blues, gospel, rock, and jazz. (Al Kooper played the B3 on Dylan's first electric album, for example.) Hammond stopped producing the B3 in 1974; it's always been a remarkable and unique instrument. According to the review, B4 does a great job of recreating the B3's sound. For some of you amateur musicians with MIDI keyboards, this might be a kick.

## Tablet Input: Doing it Right

If you want to do illustration, artwork, or high-end image editing on your PC, you need a graphics tablet. But tablets have always had an awkward aspect: you're working down here on the table while looking at the effects up there on the screen.

Wacom offers a solution in its PL500 LCD Pen Tablet System. It's a 9x12" color LCD panel that you can slant at any of 47 settings; the touch-sensitive screen offers 256 levels of pressure sensitivity and 1,016lpi resolution. A cordless stylus has a pressure-sensitive electric eraser. According to *PC Magazine*'s review, "drawing is incredibly natural and easy," as you're working directly with the image—even though the colors are unrealistic.

There's only one tiny drawback, probably unimportant for graphics professionals: the system costs $4,000. Art never comes easy.

### Review Watch

## CD-RW Drives

Galbraith, James, "FireWire CD-RW drives," *Macworld*, November 2000, pp. 92-5.

Chances are you won't care about this review *unless* you have a Mac: these external FireWire drives are considerably more expensive than internal IDE drives for PCs, and most PCs (and some Macs) don't have IEEE 1394/FireWire support in any case. If you're in this marketplace, the brief review of seven drives includes test results and a quick comparison table. *Macworld* prefers two drives from QPS: the $449 Que FireWire 12x10x32x (CD-R, CD-RW, and CD reading speeds respectively) with 4.5 mice and, if you're on a budget, the $349 Que FireWire 8x4x32x. The ratings are for price and sleek design; these aren't the fastest drives in either category. Then again, performance scores are all clumped tightly within speed categories—and, given that Plextor provides the drive for three of the four 12x units, that's hardly surprising.

## Desktop Computers

Bsales, Jamie M., "Power for now, power for later," *PC Magazine* 19:19 (November 7, 2000), pp. 158-74.

Technically, these aren't desktop computers: they're general-purpose servers, still with Pentium-compatible CPUs and Windows 2000 but with RAID 5 hard disk arrays and some level of expandability. Five leading server vendors participate: Com-

paq, Dell, HP, IBM, and NEC (Gateway, Micron, Silicon Graphics and Toshiba were between product cycles).

The second least expensive system was also the Editors' Choice: IBM's Netfinity 5100, a $6,420 Pentium III-733 equipped with 512MB SDRAM, one 9.1GB hard disk for the operating system, and an array of four 9.1GB data drives (all drives 10,000 RPM, the fastest available today). Power supplies and drives are all hot-swappable, network management software is the best in the business, the design is first rate and the system performed very well.

Howard, Bill, "The disposable PC?," *PC Magazine* 19:18 (October 17, 2000), pp. 169-76.

This slightly peculiar comparison takes two "PC appliances"—PCs that lack traditional slots or ports and diskette drive—alongside a "legacy-reduced PC" (traditional ports but no slots) and three inexpensive traditional PCs designed for managed network use. For most of us, traditional PCs still offer the best balance of flexibility and price. The article makes the usual claims that inflexible PCs lower total cost of ownership (TCO), and given the amount of nonsense spread about TCO, how can you argue otherwise?

If you're interested in locked-down PCs, read the article. The Editors' Choice goes to IBM's NetVista S40 (a "legacy-free PC" that's still fairly traditional) for its design and management software suite.

O'Brien, Bill, "Get in the game," *Computer Shopper* 20:12 (December 2000), pp. 130-8.

You probably wouldn't buy one of these "gaming systems" for your library, but the blend of power and multimedia might suit your home needs. The minimum configuration for this group of seven includes a 900MHz CPU, 128MB RAM, 18" (viewable) display, 30GB hard disk, CD-RW drive and either CD-ROM or DVD-ROM drive, graphics processor with 64MB dedicated RAM, game controller, and three-piece speaker system. In all, that's about as fully loaded as a PC can get; reduce the display RAM requirement to 32MB and eliminate the game controller, and you have a lavishly equipped multimedia PC. Prices range from $1,699 to $3,973.

*Computer Shopper* seems to have introduced a new numeric rating system for all products without any explanation (unless I missed it). The new ratings include whole numbers from 1 to 10 for ease of use, feature set, performance, service and support, and value; the final rating appears to be an unweighted average of the five numbers. Lacking explanation, it's hard to interpret the significance of either the individual numbers or the final rating, and I doubt that the intuitive ranges make any sense (i.e., Excellent 9 or above, Very Good 8 to 8.8, Good 7 to 7.8, Fair 6 to 6.8). Best Buy seals in individual reviews seem to appear with products rated 8 to 9.

That's a general confusion; the Best Buy for this roundup creates more confusion in my mind. The honor goes to the $2,499 Xi 1000K Mtower SP, which rates an overall 8.4—but the $3,973 Falcon Northwest Mach V rates 8.6. Given that "value" is already one of the five categories, this seems odd.

If the computer names just mentioned seem a bit obscure, that's the other problem with this review. There's only one brand name in the group, Gateway, with one of the best-equipped and best-performing units. It gets downgraded because Gateway only provides onsite support at their discretion and only guarantees labor for one year. Notably, Xi (which gets a higher support rating) doesn't provide onsite service at all.

Given the apparent disappearance of Quantex, the fourth-largest direct PC seller, some sensible folks might be nervous at buying unknown brands; if you're more daring, the article does provide individual reviews.

## Digital Cameras

Howard, Bill, "Is film dead?" *PC Magazine* 19:19 (November 7, 2000), pp. 178-96.

The heart of this article is a group review of nine three-megapixel digital cameras. As noted in the first paragraph, that still means that "the glass remains half full": decent 35mm cameras still capture twice as much detail and significantly better color. Atypically for digital camera reviews, three expanded portions of the same picture are included as taken with a 35mm camera, a three-megapixel camera, and a two-megapixel camera. The three-meg shot is much better than the two-meg (both in detail and color), but the 35mm is better still. That's for an 11x14" print; at 8x10" or smaller, a three-meg camera should provide excellent quality.

Four of the nine cameras rate five dots out of five possible. Two receive Editors' Choices: Kodak's $700 DC4800 Zoom and Olympus' $1,000 C-3030 Zoom. An honorable mention goes to Epson's $1,000 PhotoPC 3000Z; a slightly cheaper Olympus (the $800 C-3000 Zoom) also earns a top rating but has much smaller memory capacity.

A brief roundup covers ten two-meg cameras; the only five-dot rating (and sole Editors' Choice) goes to Canon's $630 PowerShot S100 Digital Elph.

Long, Ben, "One-megapixel cameras," *Macworld*, October 2000, pp. 95-6.

Why buy a one-megapixel camera when three-megapixel units are available? If all you need are Web images and little pictures elsewhere, the answers might be price and convenience. The five cameras reviewed here cost $299 to $479 and generally do good jobs. The review is too short and lacks image samples, but may still be useful. The highest-rated camera is Olympus' $399 D-460 Zoom for the best balance of features, price and image quality. Fuji's $399 FinePix 1400 Zoom does almost as well—but the bargain here is Olympus' $299 D-360L, which lacks a zoom lens but otherwise offers most features of the D460.

Ozer, Jan, "DV camcorders," *PC Magazine* 19:17 (October 3, 2000), pp. 143-54.

Still trying to cope with the rapidly changing digital camera market? Now you have digital camcorders to think about as well: the prices are coming down and the quality is improving. If you plan to edit videos, digital video has immediate advantages: there should be no quality loss between editing generations, and the video stream should feed right into a suitably equipped PC. The article makes at least one questionable claim ("DV tapes don't degrade after repeated playback"—which should probably be stated as "DV tapes either fail completely or work perfectly; there's no gradual degradation in digital video") but also offers worthwhile background with Jan Ozer's usual competence and clarity.

The five cameras in this group all cost $1,500 or less (a far cry from early DV at $4,000), and all of them use mini-DV tape. One of Sony's Digital-8 cameras (recording digitally on Hi-8 tape) and a $4,700 broadcast-quality DV camera were included for comparison.

All cameras in the test group include LCD panels for immediate playback; all can capture still images (usually at DV's 720x480 or 640x480 resolution, very low for a contemporary digital camera); all of them use a single CCD sensor rather than the three used in pro cameras.

Editors' Choice goes to Panasonic's $1,300 PV-DV600, with video quality nearing that of the pro camera, good audio, and excellent features and ease of use. Two other cameras match the Panasonic's four-dot rating and may be worth considering if you have specific needs. Canon's $1,000 ZR10 is stylish, easy to use, and inexpensive—but its video quality isn't as good as others. Sony's $1,500 DCR-PC5 is the smallest camera, offers great features and the best still photos, but while its video quality was excellent as rendered in MPEG-2 or RealVideo T1 rates, it did badly in lower bitrate tests (MPEG-1 and RealVideo 28.8).

## Digital Music Devices & Software

Broida, Rick, "Carry a tune," *Computer Shopper* 20:12 (December 2000), pp. 140-48.

These five "next-generation" MP3 players show the oddball range of products in this category. Perhaps as a result, no Best Buy award appears: at most, there are really only two devices that could be considered direct competitors. Those are Pine's $199 D'Music SM-320F and S3's $169 Rio 600, both fairly typical players. The D'Music includes an FM tuner and offers voice recording, and earns an 8.0 rating; its major drawback is the parallel connector it uses to download music (rather than the more typical USB connector). For most of us, the D'Music would require unplugging a printer to download music: that's just silly. The S3 earns a 7.2; it handles the Mac and downloads rapidly, but uses nonstandard memory expansion and the volume tends to be too loud.

The others are all curiosities, at least to some extent. Casio's $249 WMP-1V is a watch with MP3 playback built in; I've commented on this silly combination elsewhere. Do you really want a bulky watch with four-hour battery life just so you can get a half hour of tunes? I-Jam's $99 IJ-50 has a great price but has no internal memory and includes a mere 8MB CompactFlash card. That's about eight minutes of good-quality music, maybe 16 minutes of sub-FM music; once you add enough memory for an hour of playback, you've lost the price advantage and have an underfeatured player with no LCD window and no pause button. Finally, Sensory Science's $299 Rave:PM 2300 uses Iomega Clik (now PocketZip) 40MB disks for cheap music storage—but 40MB limits your playback time, and the unit weighs twice as much as the others.

A sidebar notes an intriguing development that may make sense for people more interested in music quality than listening while jogging. Several portable CD players are adding MP3 support, including two units noted here at $130 and $200. While 128K MP3 isn't CD quality, it's probably good enough for the headphones used with players like this—and you can put 10 hours of music (or more) on a single CD-R at that rate. For that matter, even at a much higher-quality recording rate, you'd still get five or six hours of music on a fifty cent disc—and you can use the same player for regular CDs as well.

Evans, Daniel S., Jeremy A. Kaplan and Carol A. Mangis, "Play that funky music," *PC Magazine* 19:17 (October 3, 2000), pp. 228-32.

Music players for the PC continue to improve, as this roundup of seven current programs shows. More programs support variable bit rate recording of MP3s, which should improve sound quality at the expense of disk space. New audio types are appearing, including WMA (Windows Media Audio) and the Real format. Still, the Editors' Choice here as in almost every comparative review is MusicMatch Jukebox, version 5.1 in this case. It plays streaming video and audio and makes it easy to burn your own CDs; if you plan to use it heavily, pay the $40 for a lifetime deluxe (or Pro) version license. Runners-up include Media Jukebox 4.0, RealJukebox 2, and RioPort Audio Manager 3; in each case, the standard version is free (Media Jukebox has no pro version).

Greenman, Catherine, "Shake, rattle, and MP3," *FamilyPC* 7:10 (October 2000), pp. 120-3.

These five portable MP3 players cost $170 to $399 and hold 32MB to 64MB of MP3-encoded music: half an hour to two hours of cassette-quality to near-CD quality music. You pay a lot more than for a portable CD player (which can provide *true* CD quality), but these devices are lighter, a little smaller, and even more immune to movement (since they lack moving parts). A little credit to the introduction for noting that "quality may be sacrificed" compared to a Discman or Walkman, reduced by the parenthetical claim that "128Kbs files produce CD-like sound." Why not just say "the sound is good enough for jogging" and let it go at that?

Highest-rated in this group is Creative Labs' $329 Nomad II. It's expensive, but you get built-in voice recording, an FM tuner, reasonable battery life, and a thoughtful limit of 90db for headphone output—which they grumble about, although it's a good way to protect hearing. If you don't want to invest that much money in MP3, S3's $169 Rio 600 comes in second and has snazzy looks, but standard memory is only 32MB.

Heid, Jim, "Portable MP3 players," *Macworld*, November 2000, pp. 96-7.

There aren't that many Mac-compatible MP3 players, but this roundup includes three costing $170 to $329. The cheapest unit, S3's $170 Rio 600, gets the highest rating—but (astonishingly) you'll have to pay another $30 to keep the bundled software operating fully. One reason the Rio costs less than the competitors is that it lacks their FM tuner; then again, you can buy a lightweight FM headphone radio for a lot less than any MP3 player.

Kushner, David, "Play that PC music," *FamilyPC* 7:10 (October 2000), pp. 126-8.

If you know much about PC music managers—or jukeboxes, as they're frequently called—you can guess the winner of this five-product roundup. A good music manager will play your audio CDs (and look up the artist and song titles if you're connected to the Internet), record CD tracks to hard disk as CD files (.WAV format on the PC) or compressed as MP3 files, and organize and play MP3 files. Better managers offer wider options for MP3 recording quality and may provide facilities for burning your own CD-Rs and CD-RWs.

Almost since it appeared, MusicMatch Jukebox has been the hot program in this area—and that hasn't changed. Recent versions include an improved MP3 compression system as well as a range of cute (but rarely useful) features such as "skins" to customize your player and visual generators for those groovy light shows to go with your songs. As with most competitors (except Siren's Jukebox Player), MusicMatch is available in a usable but limited free version—but the $30 deluxe version does more and does it better. (I've been using MusicMatch Deluxe for some time, and it does a good job.)

Siren Jukebox Player ($36-$40) and Windows Media Player 7 (free) tie for second, just one point behind MusicMatch. Siren offers the most flexible capabilities for preparing your own CDs; WMP—which comes preinstalled with Windows ME—is comprehensive and supports video as well as audio.

## Graphics Software

Simone, Luisa, "Video editing software," *PC Magazine* 19:17 (October 3, 2000), pp. 157-74.

This group review is a companion piece to Jan Ozer's review of DV camcorders (elsewhere in this section). The four programs reviewed cost $500 to $700 and offer considerable power—but none of the programs was flawless enough to earn an Editors' Choice. That suggests waiting a few months if you don't have immediate needs to edit digital video. Otherwise, read the article carefully. Three programs (Adobe Premiere, MediaStudio Pro, and Vegas Video) tied with four-dot ratings, but each has different strengths and weaknesses.

Stafford, Alan, "A pixel's worth a thousand words," *PC World* 18:8 (August 2000), pp. 161-9.

This roundup includes eleven inexpensive photo editors, ranging from ArcSoft's $40 PhotoStudio 2000 to Jasc's $109 Paint Shop Pro 6 and Microsoft's $109 PhotoDraw 2000. Adobe Photoshop 5.5 was tested alongside the others, but at $609 (and with a much steeper learning curve) it's intended for

a different class of users. The discussion points up weaknesses in most photo editors. The Best Buy is Ulead's $80 PhotoImpact 5, with the most features and more customization than most competitors.

## Internet Service Providers

Keizer, Gregg, "The best and worst ISPs," *PC World* 18:11 (November 2000), pp. 148-62.

Amazingly, there are still more than 7,400 ISPs, even though it's a fairly marginal business for most of them. This review combines a survey of more than 2,000 *PC World* subscribers with performance testing by Visual Networks in order to arrive at judgments on the nine biggest national ISPs and six major regional providers. The results make for interesting reading although some of them may come as no surprise. The biggest ISP, America Online, has mediocre service and satisfaction ratings—but far from the worst. That dubious honor goes to the regional in my area: Pacific Bell Internet Services couples poor performance (the second-highest logon failure rate) with poor service and support.

Working up from the bottom, Microsoft Network also ranked poor on performance (10% logon failure rate) but fair on satisfaction, while Prodigy and Southwestern Bell both ranked poor on satisfaction but fair on performance. The peculiar case was BellSouth: outstanding performance but poor satisfaction. Ameritech had fair performance and lacked enough responses to provide a satisfaction rating.

At the other extreme, the only single outstanding rating besides BellSouth was for the combined EarthLink and MindSpring: outstanding satisfaction—but only fair performance.

Finally, one national network earned outstanding ratings in both categories; it also offers the full range of broadband options and generally solid features: AT&T WorldNet. Speaking from personal experience (I've used WorldNet at home for years now), it's hard to argue with the rating: I almost never get busy signals and almost always connect at 50Kbps or faster, and the Web hosting service is friendly and capacious.

## Internet Telephony

Bass, Steve, "Net phones: dialing without dollars," *PC World* 18:11 (November 2000), pp. 183-7.

Yes, you can make long-distance calls for free (or almost free) using your computer. No, you can't expect consistently good sound quality or consistent connections—and the free services will probably inundate you with ads, one way or another. This roundup covers ten free or nearly free services and makes interesting reading, although I'm not quite ready to cancel my long distance service. If you're interested, read the article, think about the conditions, don't even consider it (yet) for business use. The Best Buy goes to Deltathree for consistently good voice quality and a clean interface; it's free in the U.S. and inexpensive overseas—and you can make PC-to-phone calls as well as PC-to-PC.

## Network Systems

Freed, Les, "Home network improvement," *PC Magazine* 19:17 (October 3, 2000), pp. 32-6.

Do you have more than one PC at home—or do you have just a few staff PCs in your library? If so, you may be a candidate for a home network—all the more so if you have a broadband Internet connection. This review covers four home networking kits that aim to provide effortless, inexpensive setup and operation. All products reviewed use the recent HomePNA 2.0 networking standard, communicating over existing telephone wiring. All products are mutually compatible and can be connected to firewalls, routers, high-speed modems and other HomePNA 2.0 devices.

These products run at 10Mbps speed, but don't expect Ethernet equivalence: real throughput was 3Mbps, about half that of 10Base-T networks but more than fast enough for most small-network uses. The reviewers didn't have problems with compatibility. These devices connect through USB ports, so installation is easy enough—as long as you have a phone jack near each PC. (The network runs over phone wiring but doesn't interfere with phone use.)

As with most First Looks roundups, there's no Editors' Choice, but two of the four earned the highest possible rating (five dots of five). D-Link's DHN-920 10Mb USB Phoneline Network in a Box sells for $110 and includes two network adapters: it provides all you need for a two-PC network, including plenty of software. It may require more sophistication than some competitors, but offers "terrific value for the money." 3Com's HomeConnect Home Network Phoneline USB costs $195 for a two-PC kit but was easy to install and configure.

## Notebook Computers

Broida, Rick, "Light makes right," *Computer Shopper* 20:10 (October 2000), pp. 130-7.

The five systems in this group cost $2,254 to $3,398, have at least a 400MHz CPU, 11" screen, 64MB RAM, 6GB hard disk—and, crucially, weigh less than 4.5 pounds with battery but without ex-

ternal drives and AC adaptors/rechargers. Two of the systems earn four stars: Compaq's $2,899 Armada M300 with its fast processor (600MHz), large hard disk, and lightweight case, and Dell's $2,402 Latitude LS H400ST. The article touts the fast performance of the Compaq—but its *application* performance was actually worse than the 400MHz Dell (and all but one other system).

Poor, Alfred, "Cutting-edge to go," *PC Magazine* 19:20 (November 21, 2000), pp. 30-4.

This first look roundup discusses some recent developments in notebook design and reviews five contemporary portables. Trends include Transmeta's Crusoe CPU (seen in the Sony VAIO PCG-C1VN PictureBook), 133 dpi UXGA LCD panels (seen in Dell's Inspiron 8000), wireless networking (Dell's Latitude C600) and more powerful ultraportable systems (Acer's 4lb. TravelMate 351 TEV and Gateway's 3.7lb. Solo 3350). I discuss the UXGA panels in continuing ebook coverage.

Briefly, the $2,300 Sony (a true ultraportable at 2.2lb.) is reasonably well equipped (128mb RAM and a 12GB hard disk) and includes a built-in camera and microphone, but it's slow and has a small, oddly-shaped display (8.9" diagonal but with cinema dimensions, 1,024x480). It gets three dots, a "good" rating. The Inspiron isn't priced yet but it's likely to be at least $4,300; for that, you get a fast, well-equipped "desktop replacement" that earns four dots (very good). The $3,378 Latitude also earns four dots and seems to be a decent midrange notebook, but the wireless feature isn't quite there yet: the antenna is built in, but the Mini-PCI network interface wasn't available for testing.

Acer's $2,499 TravelMate has a relatively small screen, short battery life, and slow performance, but it does come with 128MB RAM, a Pentium III-700, and a 10GB hard disk in a small, fairly light package. One interesting feature: an optional slot that takes a Smart Card (like a credit card but with a chip) and requires both the card and a password to activate the computer. Put the card in your wallet and a stolen TravelMate is a doorstop—which doesn't help once it's been stolen but at least protects your data. The TravelMate gets three dots.

Finally, Gateway's $2,199 Solo gets four dots. It has a small screen (12.1", smaller than the Acer) and short battery life (less than two hours), but its processing speed is good: substantially faster than the Acer, even though the CPU is theoretically slower.

These are all specialty notebooks at relatively high prices, as you might expect at the cutting edge.

Thornton, Carla, "Ten for the road," *PC World* 18:9 (September 2000), pp. 146-56.

Somewhere between ultralight notebooks and so-called desktop replacements, these ten computers weigh four to six pounds and incorporate one internal drive in addition to the hard drive. In most cases, that means you'll use an external diskette drive—but for many users that's the drive that you don't need on the road anyway. The group includes most big-name notebook vendors, but Gateway and NEC were in the process of releasing new models at the time of testing.

The Best Buy honor goes to IBM's $3,699 ThinkPad T20, a 4.6-pound unit with good performance (Pentium III-700), a big screen (14.1"), IBM's usual quality keyboard, and decent battery life (more than three hours). You get a DVD-ROM drive, V.90 modem, 128MB SDRAM, and a 12GB hard disk, but it's still an expensive unit.

Runners-up, tied for second place (in point score), include Acer's $2,799 TravelMate 602TER, Micron's $3,599 TransPort LT, HP's $2,999 OmniBook 6000, and Dell's $3,502 Latitude CPx J750GT. The article recommends Acer's unit for "itinerant folk on tighter budgets"; while it lacks a DVD-ROM drive, it's the only unit to come with a CD-RW drive. The Dell offers the best performance in the entire group of ten, but it's really too heavy to qualify for the review and nearly as expensive as the IBM. Unfortunately, the article lacks individual writeups. One interesting note: last place in the roundup goes to Compaq's Armada M700—largely because only one aspect of this system is above average: the $4,588 price.

## Printers

Littman, Dan, "The fine print on ink jets," *PC World* 18:11 (November 2000), pp. 168-78.

Reviews of inkjet printers increasingly make the point of this roundup's teaser paragraph: "Those speedy new color printers may be inexpensive, but ink and paper will cost you plenty." The overall review includes 25 printers, but in *PC World's* usual inimitable (and unfortunate) style, only the best ten are reviewed in print. If your criteria differ from the editors, you can go online for other reviews.

This time around, Best Buys went to the Lexmark Z52 Color Jetprinter ($179) and Lexmark Z32 Color Jetprinter ($99), and I find the latter award nearly inconceivable. The Z32 costs a fortune to use *and* is a single-cartridge printer; I can't imagine buying a single-cartridge inkjet these days, with its expensive "mixed color" black text. There's no real

explanation for the score, but it must be heavily weighted on price—although the first year's use wipes out the $50 difference between this and the third-rated Xerox DocuPrint M750, which is faster, produces better output, and not only supports black and color simultaneously but lets you replace individual color tanks. For that matter, although the fourth-ranked HP DeskJet 932C is a trifle more expensive ($199 at full retail), it has even lower consumables costs, offers superior print quality, and can do automatic duplexing for another $80. It's also one of the quietest printers on the market. Somehow, from where I stand, the Lexmark Z32 is a false bargain—but I don't make the rules for *PC World*.

Stone, M. David, "Ink fast," *PC Magazine* 19:20 (November 21, 2000), pp. 200-26.

"The paperful office is here to stay." That's the lead for this review of 31 inkjets in three categories: 18 personal printers, six multifunction units, and seven printers specifically designed for photo printing. As with the *PC World* above, this review includes estimates of consumables cost based on printing 25 black and 25 color pages per week. The table of costs includes an ink cost per year (paper isn't included) and the total cost over three years, including the printer itself. Among other interesting points, we see that The most expensive personal inkjet in the roundup (HP's $1,000 Business InkJet 2250TN) costs *less* than some of the cheapest printers on a three-year basis. As an extreme case, Lexmark's $70 Z32 will cost $2,511 over three years of moderate printing; the HP will cost $1,662—in both cases, including the cost of the printer.

When you see "18 printers" you might assume that quite a few companies have entered the inkjet business. You'd be wrong. The set of personal printers comes from four manufacturers (and one lone model from Xerox). HP accounts for eight of the 16 personal units with their dazzling array of models; Compaq's two models are manufactured by Lexmark. There are quite a few good printers here, with speed and quality continuing to improve, but (unsurprisingly) the Editors' Choices among personal printers come from the old standbys: Epson (the $200 Stylus Color 980, the cheapest printer to operate) and HP (the Business InkJet, the second-cheapest for consumables even though it's the most expensive printer). Two HP models (the $500 OfficeJet K80 and $1,000 OfficeJet G95) share the award for multifunction printers; the G95 has a flatbed scanner and better output. Epson's $250 Stylus Photo 870 gets the nod among photo printers—although, if money is no object, the choice would be the $900 Stylus Photo 2000P.

# Scanners

Dyszel, Bill, "Scanning for savings," *Computer Shopper* 20:10 (October 2000), pp. 140-5.

Can you get a good scanner for around $100? By the standards of a few years ago, these are all *excellent* scanners: all CCD (not the inferior CIS), with 600x1200dpi optical resolution, USB ports, and reasonably complete software suites including OCR, for plrices ranging from $90 to $130. The Best Buy is Umax' $99 Astra 3400, the fastest and "best-balanced" scanner in the group; its OCR software (ScanSoft OmniPage LE) did a fine job, even with a three-column original. Two runners-up may be worth considering: HP's $129 ScanJet 3400C and Microtek's $120 ScanMaker 3700.

Fraser, Bruce, "USB flatbed scanners," *Macworld,* December 2000, pp. 99-102.

This brief Mac-oriented roundup includes nine scanners ranging from $169 to $349. All but one capture 1,200dpi; the one 1,600dpi unit produced larger files but not necessarily better scans.

All the scanners produced decent output; three offered excellent scans and earned identical four-mouse scores. Canon's $199 CanoScan N1220U offers excellent color but draws its power from the USB port (which may be problematic). Agfa's $199 SnapScan e50 adds excellent sharpness to excellent color, but the scans were noisy. Microtek's $349 ScanMaker X12USL is expensive but offers decent scans and can export "high-bit" output (transmitting 42 bits rather than the usual 24). The SnapScan includes a transparency adapter that yields reasonably true color when scanning 35mm slides and negatives, but the unit's optical resolution will only yield a 1,000x1,500 pixel scan from a 35mm original: not bad for casual use but throwing away 75% of the original's resolution.

Jantz, Richard, "Fantastic flatbeds," *PC World* 18:8 (August 2000), pp. 135-42.

This roundup started with 18 flatbed scanners costing anywhere from $90 to $900, but only includes details on seven units they consider suitable for home and small offices and three to meet corporate needs. Instead of individual writeups, the article discusses major factors and names the best units for each factor. The Best Buy for home use is Epson's $299 Perfection 1200S, with 1200 dpi optical resolution, high quality scans, top speed, and a good software bundle. For corporate use, they suggest Microtek's $389 ScanMaker X12USL.

## Shareware

Canter, S. (2000), "The PC Magazine shareware awards," *PC Magazine*, Vol. 19 No. 16, pp. 101-07.

Shareware? Is that still around? Yes—sort of. Much of what's called shareware in 2000 would be disdained in the early 1990s as being crippleware, bannerware, or adware, although that latter term probably didn't exist back then. Crippleware is downloadable software that has some important features disabled until you register and pay: for example, programs with print functions disabled. (That's different than programs such as MusicMatch, fully functional in their free downloadable version but with *added* features in the paid, registered version.) Bannerware was fake shareware: software that did just enough to show you how it would work. Adware, the newest category, is software that displays Web-based ads while it's running, until you pay for a registered copy.

It's too bad that companies feel the need for such gimmicks, but that's another essay for more innocent times. Meanwhile, this roundup lists 40 finalists in eight categories with descriptions of the winning program in each category. The overall winner is Poco 2.02, a $25 e-mail program. Other winners include a speaking clock (with appointment reminders), an image manager, some Web-related programs, and a program for drawing flowcharts.

## Utility Software

Needleman, Ted, "The 'other' suites you need," *PC Magazine* 19:20 (November 21, 2000), pp. 60-2.

There are now three utility suites with contemporary versions; all of them run on Windows 2000/NT and Windows ME as well as Windows 98. This review describes each suite in moderate detail and declares a three-way tie: all three earn four dots, *PC*'s "very good" rating. Fix-It (now from OnTrack) is the cheapest and offers the most comprehensive system diagnostics. McAfee Office is the most expensive (but the range is only $50 to $70) and offers firewall software along with the usual collection (much of it from the old Nuts & Bolts package). Norton SystemWorks is still somewhat a bundle of products rather than a unified offering, but it also offers some of the best software on the market—particularly Norton Utilities and CleanSweep. The article concludes that the choice between McAfee Office and Norton SystemWorks depends on the features that matter most to you.

Sengstack, Jeff, "Make your PC hacker-proof," *PC World* 18:9 (September 2000), pp. 169-78.

The PC columnist for my local paper (a Mac enthusiast who claims to be objective) suggested in a recent column that you don't *really* need to worry about security when you add a persistent broadband Internet connection to your home PC. That's not the message most other writers have offered. More typically, the sense is that you can expect automated hacker probes within an hour or two of providing a persistent address. Maybe the crackers don't care about messing up your PC, but they're only too happy to infiltrate it to use as one of many sources for attacks against major Web services.

This article tests six personal firewalls using a small number of scenarios and, as usual for *PC World*, doesn't provide individual writeups. Products had to sell for $50 or less to be included in the roundup. *PC World* gives two Best Buy awards, one to BlackICE Defender ($40 from Network ICE) for its easy installation and clear operation, the other to ZoneAlarm 2.1 (free from Zone Labs for individual and nonprofit use, $20 per seat per year for businesses) for its tight security—although it tends to provide too much feedback. This article lowers Norton Personal Firewall for clumsy controls and a complex interface; most other reviews seem to regard Norton and BlackICE as the top products.

# The Details

*Cites and Insights: Crawford At Large* is written and produced by Walt Crawford, an information architect at the Research Libraries Group, Inc. (RLG) Opinions herein do not reflect those of RLG.

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