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Hamlet's Blackberry: Why Paper Is Eternal

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Introduction*

The condition of American journalism in the first decade of the twenty-first century can be expressed in a single unhappy word: crisis. Whether it's a plagiarism scandal at a leading newspaper, the fall from grace of a network anchorman or a reporter behind bars, the news about the news seems to be one emergency after another. But the crisis that has the greatest potential to undermine what the craft does best is a quiet one that rarely draws the big headlines: the crisis of paper. Paper's long career as a medium of human communication, and in particular as a purveyor of news, may be ending.

Exhibit A is the newspaper industry, which is in decline largely because of competition from newer media outlets, especially on the Internet. Shrinking circulation and ad revenues, together with rising newsprint costs, are chipping away at the enormous profit margins American newspaper publishers have enjoyed for decades, throwing the medium's future into doubt. Newspapers have been losing readers for many years, but recently the rate of the decline has accelerated. Between 2003 and 2006, U.S. dailies saw their total circulation fall by 6.3 percent for daily editions, while Sunday circulation was down 8 percent.¹ The percentage of Americans who read a newspaper every day has fallen from about 70 percent in 1972 to less than 35 percent in 2006.² "Few in the industry are now saying the downward trend can be reversed," according to a recent report by the Project for Excellence in Journalism.³ It seems entirely possible that five or ten years from now, newspapers will no longer exist, at least not in

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the familiar form that gave them their name – on paper. Some already speak of the medium in the past tense. “Who Killed the Newspaper?” asked the cover of *The Economist* in August 2006.⁴

More broadly, there is a sense in the culture, inchoate but unmistakable, that all print media, including magazines and books, are careering toward obsolescence. This is hardly a new idea. Since the advent of the computer in the mid-twentieth century, futurists have been foretelling the death of paper-based communication. So far the obituaries have all been wrong, or at least premature. Time and again, advances in computer technology that were supposed to make hard-copy media obsolete failed to do so. Paper lived on.

But with the rise of the Internet, the popularity of online media outlets, and the proliferation of devices to conveniently access those outlets – personal computers, cellphones, personal digital assistants, e-books, etc. – a paperless media world often seems not just possible or likely but inevitable. After all, in countless other ways paper already has either surrendered to the newer media or is in rapid retreat. Most financial transactions that used to be conducted on paper, from trading stocks to paying utility bills to filing tax returns, can now be done online. The personal letter, which handily survived the advent of the telephone, has been largely done in by email. Even libraries, those seeming bastions of paper culture, are conspirators in paper’s demise. Most public and university libraries long ago traded their card catalogs for electronic databases, which means that in order to locate a paper source one must now go through a non-paper gatekeeper. And the content of the libraries themselves has been moving online, too, as librarians rush, often with outside partners such as Google, to create digital doppelgangers of their holdings. More and more, a

text printed on paper only exists in the fullest sense of the word if it is on the Internet.⁵

In short, paper is an increasingly *subordinate* medium. Like a brain-dead patient on life support, it lives because other technologies allow it to live. The only question, it seems, is when we will put paper out of its misery. The practical advantages of digital technology, including lower costs, wider reach, instant delivery and fewer environmental consequences, are inarguable. As the Internet journalist Mickey Kaus put it last year, “Why would you continue transmitting information on this incredibly expensive medium that kills trees?”⁶ The question was rhetorical, reflecting a point of view so obviously sensible the only appropriate response is a nod. *Oh, yes, paper’s days are most certainly numbered.*

Or are they? We live in an age obsessed with new technologies. The sophisticated modern consumer knows the fine points of all the latest media devices. Comparisons between competing technologies – PC versus Mac, plasma versus LCD, Blackberry versus iPhone, satellite versus terrestrial radio – are a staple of consumer culture. There are countless popular magazines dedicated to helping us stay abreast of our media devices, and they cover every imaginable kind of technology except the one on which the magazines themselves are printed. Paper is the most successful communications innovation of the last 2000 years, the one that has lasted the longest and had the profoundest effect on civilization. One can easily make the case that without the technology that is paper, there would be no civilization. Yet most of the time, we don’t even think of paper *as* a technology. And so we don’t ask the questions we routinely ask about other technologies: How does it work? What are its strengths and weaknesses? Is it easy and enjoyable to use?

Paper doesn't seem to require much consideration because it's so simple: a thin, flexible material that reflects light, crisply displaying any marks you make on it. What more is there to say? It has no circuits or chips, no ports, touchpad, speakers or screen. It doesn't link to any networks or "sync" with other devices. It won't download files, burn CDs or play movies. It just sits there, mute and passive, like a dog that knows one trick, waiting to perform it again.

Yet dog tricks are deceptive. A dog fetching a ball doesn't appear to be doing anything special. But how many other creatures can do this? A cat won't fetch, nor will a rabbit or a fish. It's hard to get some highly intelligent children to fetch on command. A dog fetches for complex reasons that are invisible to the observer of the act, factors rooted in the relationship between dogs and people that has been formed over centuries of co-existence, breeding, training and daily interaction.

Though paper appears to be a relatively "dumb" medium, it too performs tasks that require special abilities. And many of paper's tricks, the useful purposes it serves, are similarly products of its long relationship with people. There are cognitive, cultural and social dimensions to the human-paper dynamic that come into play every time any kind of paper, from a tiny Post-it note to a groaning Sunday newspaper, is used to convey, retrieve or store information. Paper does these jobs in a way that pleases us, which is why, for centuries, we have liked having it around. It's also why we will never give it up as a medium, not completely. For some of the roles paper currently fulfills in our media lives, there is no better alternative currently available. And the most promising candidates are technologies that are striving to be more, not less, like

paper. Indeed, the pertinent question may be not whether the old medium will survive, but whether the new ones will ever escape paper's enormous shadow.

On the evening of Monday, February 7, 2007, the Drudge Report was serving up the house specialty, that pungent stew of headlines that has made it one of the world's most popular news websites.⁷ The story linked at the top was about Rudolph Giuliani's announcement that he was running for President. Below, in Drudge's signature Courier font, were dozens of other links including: **'SUPER BOWL' draws 93 million viewers; Fireballs seen across Midwest** and **THE DOG BORN WITH NO EARS**. Near the bottom of the left-hand column, just above **PHONE GIANTS PLOT SECRET RIVAL TO GOOGLE**, was this four-line item:

**World's Oldest Newspaper -
 Founded in 1645 - Goes
 Digital; Web-Only
 Publication Now . . .⁸**

The best headlines are simultaneously familiar and surprising. That is, they confirm something we already know while teasing us with something we don't. This one had both qualities. It was familiar in that newspapers have been going online for more than a decade. The surprising part was the notion that this unnamed ancient publication was going "Web-only," or abandoning paper completely. While all major newspapers now have online editions, none in the U.S. has yet closed down the paper side of its operation. When that happens, one would intuitively not expect the oldest newspapers to lead the way. Like

aged people, older businesses tend to be set in their ways, less inclined to change with the times. And newspaper culture is particularly hidebound.

The link led to an Associated Press wire story picked up by the online edition of *The Guardian*, the London daily. Datelined Stockholm, Sweden, the story began:

For centuries, readers thumbed through the crackling pages of Sweden's *Post-och Inrikes Tidningar* newspaper. No longer. The world's oldest paper still in circulation has dropped its paper edition and now exists only in cyberspace. The newspaper, founded in 1645 by Sweden's Queen Kristina, became a Web-only publication on Jan. 1. It's a fate, many ink-stained writers and readers fear, that may await many of the world's most venerable journals.

"We think it's a cultural disaster," said Hans Holm, who served as the chief editor of *Post-och Inrikes Tidningar* for 20 years. "It is sad when you have worked with it for so long and it has been around for so long."

For anyone unfamiliar with Swedish society, it was impossible to know if Holm was right that this is a "cultural disaster." Were those "crackling pages" really that significant to Swedes? In fact, according to the story, the world's oldest newspaper currently has a circulation of "only 1,000 or so," or less than that of many American college newspapers. Since the news outlet itself was not vanishing but merely moving to a new delivery mode, it wasn't clear what exactly the editor felt was being lost, and his comments did not specify. Nor did he cite any functions that it would no longer perform, or would perform

less effectively, in a digital format. One might surmise that he believes paper is a superior medium for delivering news, but he didn't actually say that. What he said was simply that it was "sad" to see the passing of a medium (1) with which he'd been associated "for so long," and (2) that had been in existence "for so long." In other words, his regret was apparently based in nostalgia, for his own past as a paper-media journalist and for the long stretch of time during which his beloved *Post-och Inrikes Tidningar* had arrived on paper.

Now, it's possible the reporter used the "sad" comment because it made good copy, and left out other statements Holm might have made about the virtues of the old paper. In any case, the point is that the Associated Press decided there was *news value* in the editor's emotion-laden reaction to the paper going digital. And there was: The vintage twentieth century newsman getting misty about the death of newspapers is a rich signifier of the times in which we live. It confirms, in a deliciously cartoonish way, a widely held belief that those who mourn the passing of paper-based communication do so purely for sentimental reasons. In digital culture, this vestigial affection for paper is a standing joke, shorthand for stodgy Luddism. Google recently announced that it was starting a new service called "Gmail Paper," which would allow users of the company's popular email service to receive, by postal delivery, paper copies of any messages. The program was "introduced" on April Fool's Day, complete with testimonials from excited early adopters. "I've always felt uneasy about the whole Internet thing," said one Kevin S. "With the help of Gmail Paper, now I'm taking matters back into my own hands, literally." The gag elicited much chuckling online.¹⁰

Popular commentary about the decline of newspapers confirms the stereotype. “One of the great pleasures of my average day is reading the newspaper,” curmudgeonly journalist Andy Rooney wrote recently. He reported that he receives five newspapers every day: “None of the ones I read have funny papers. They weren’t really funny when they did appear, but I miss ‘Winnie Winkle,’ ‘The Gumps,’ ‘L’il Abner’ and ‘Buck Rogers.’ The first daily comic strip, long gone, was ‘Mutt and Jeff.’” Missing features of the newspaper that you didn’t even like when they were around is nostalgia of an especially pure grade. *The Times Union* of Albany ran the column under the emphatically sentimental headline: “For the Love of the Newspaper.”¹¹

In his syndicated column, Garrison Keillor recently wrote that the young people he sees in coffee shops staring at the popular social networking website MySpace – “that encyclopedia of the pathetic” – don’t know what they’re missing: “It is so lumpen, so sad that nobody has shown them that opening up a newspaper is the key to looking classy and smart.” He went on to offer instructions for how to read a newspaper in public: “You open it with a flourish and a ripple of newsprint, your buoyant self-confidence evident in the way you turn the pages with a snap of the wrist, taking in the gray matter swiftly, your eyes dancing over the world’s sorrows and moving on, crinkling the page, snapping it, rolling it, folding the paper in halves and quarters, tucking it under the arm and tapping it against the palm. Cary Grant, Spencer Tracy, Jimmy Stewart, all the greats, used the newspaper to demonstrate cool.”

Keillor is being arch, consciously playing into the stereotype of the paper-phile as a codger whose idea of “cool” expired around 1950. Even so, here again the newspaper is not a functional tool of the present but a kind of

time machine that travels in only one direction – backward.¹² So it goes all over the old media today, among writers of a certain age: an epidemic of wistfulness about newspapers. Even when someone shares an original thought about paper media, it gets lost in the bathos. Under the headline, “I’ll Miss Having a Newspaper in My Hands,” longtime *Providence Journal* columnist Mark Patinkin began a recent column: “I was in a Starbucks the other day, and saw a half-dozen folks reading their laptops. It got me thinking. First, it’s amazing that news can now be beamed wirelessly to your LCD screen as you sit in a coffee shop. Second, I sure am going to miss newspapers. At least the kind you can hold. I’m not sure how much longer they’re going to be around.”

The column went on in this vein, apparently another minor-key paean to the beloved antique. At one point toward the middle, however, Patinkin made a perceptive observation: “In a time of distractibility, a paper also keeps you focused. When we go online, we may start with a news story, but then go chaotically from e-mail to stocks to Google to shopping, and then back to news. But sit with a newspaper, and you no longer are sidetracked. You’re focused on just the day’s events. There’s no ‘you have mail’ chime to interrupt you. It’s a rare sane moment in the day.”¹³

Not an original thought but nicely put, and it gets at one of paper’s integral assets: By virtue of being *unconnected* to other media, paper sometimes makes it easier to concentrate on the subject at hand. For the centuries when there essentially were no other media, this “feature” of paper didn’t matter much. But in a multi-tasking world where pure focus is harder and harder to come by, the value of print media’s seclusion from the Web is arguably increasing. You could write a whole column on this “emerging” strength of paper, but that would be a departure from the standard backward-looking

storyline. A few sentences further down in Patinkin’s column, the violin music rose again: “Call me sentimental, but it’s almost like a friend.”¹⁴

Little wonder that canny observers of the media business suggest it’s time everyone who still harbors tender feelings about news on paper got over it. If newspapers are indeed in the downward spiral they appear to be in, nostalgia won’t save them. Scott Donaton, publisher of *Advertising Age*, wrote last year:

“[C]ertain forms of media that are currently print-based, particularly daily newspapers, must explore the possibility that there are more reader-friendly and cost-efficient ways to distribute their content. It’s still surprisingly difficult to get traditional media executives to admit this. But their resistance seems based on an emotional attachment to ink on paper, a deeply held – if largely indefensible – sense that a newspaper’s soul is inextricably linked to its format.”¹⁵

On the face of it, this makes sense. It’s hard to see any link between the soul of a newspaper and the paper it’s printed on, assuming that by “soul” we mean the fundamental values of good journalism, such as timeliness, originality, accuracy, and fairness. There is nothing obvious about paper that encourages these values, and in many ways the digital medium makes it easier to honor them. An online outlet can break a story at any hour (no presses or delivery trucks holding things up), so timeliness is much simpler to achieve. As for originality, the Web has a decided edge in that’s it a wholly new world, a cultural blank slate where original voices and thoughts can appear out of nowhere and flourish. For a newspaper story to be accurate and fair, it should include all relevant facts and points of view, and here also online papers have an advantage: unlimited space or “news hole” to provide context, nuance and

depth. As Tom Rosenstiel, director of the Project for Excellence in Journalism, has put it: “Once you let go emotionally, you realize that as journalism, online is infinitely superior to print, in its ability to offer links to other material, original documents, full texts of interviews, video, and as much statistical backup as the reader can stand.”¹⁶

For the news consumer, online newspapers have many distinct advantages over paper ones, first and foremost convenience. Why go to the trouble of having an ungainly sheaf of paper delivered to your house each morning – retrieving it from the driveway, working your way through the inky pages, storing it for recycling – when you can call up *exactly the same content* on the screen nearest you, without all that bother, and in most cases for free?¹⁷

If that’s all there is to it, if journalists and readers are both better served by digital delivery of news, then the answer is obvious: Every newspaper should follow the “world’s oldest” and move wholesale to the Web. Indeed, the obvious question is why hasn’t this happened yet. The answer, in part, is brutal economic reality. Most newspapers haven’t figured out to make as much money from publishing with electrons as they made (and still make) from vending “ink on crushed wood.”¹⁸ Charging fees for digital content doesn’t work in most cases because the public has come to think of online news as a free commodity. And though advertising on the Web is growing rapidly, for newspaper publishers it is not yet producing income comparable to what ads on paper bring in.¹⁹

There are many proposed ways out of this fix, new business models that are debated at the conferences and panels where newspaper people gather.²⁰ In these discussions, the format in which newspapers might be saved – on paper, online or in some hybrid arrangement – is an open question, the basic

assumption being that it doesn't much matter. The point is preserving newspapers as profitable enterprises (or, in some models, as charitably endowed nonprofits) that will continue to produce quality journalism. The "newspaper" is just an institution, an abstract entity that gathers and distributes the core product, which is news and other information. The paper it's printed on is simply a container for that information, a technology of convenience. If we replace the old container with a new one, nothing will be lost, as long as the contents are the same. Whether milk is delivered in a plastic bottle or a waxed cardboard carton, it's still milk. So, too, with information, says this argument, which in the business world is known as the "platform-agnostic" view because it is indifferent to the vehicle or "platform" used to deliver content. As Daniel Okrent, the writer and former public editor of *The New York Times*, once put it: "The words and pictures and ideas and images and notions and substance that we produce is what matters – and *not* the vessel that they arrive in."²¹ If this is true, there is no reason to feel any attachment to the paper newspaper, or for that matter any paper medium, other than nostalgia and perhaps aesthetics.

But what if there's more to it? What if paper somehow influences or shapes the information that newspapers and other paper media produce? It's a strange idea, one that requires us to imagine paper not just as a container of content, but part of the content itself. If paper's contribution (whatever that might be) to the content is valuable, this might explain why traditional newspapers are having such trouble shedding their digital selves. Perhaps paper itself endowed newspapers with some meaningful quality that cannot be replicated in the digital medium as we currently know it.

What would this special quality be? To answer that question, it's necessary to think hard about the way people interact with paper – not just

newspapers, but paper broadly defined, as a medium for conveying all kinds of information. What exactly does paper do for us? How does it make us think and feel? Does it “know” things about us that other technologies don’t?

One afternoon last year, I went to a stationery store in Cambridge, Massachusetts, to buy some note paper. The store, Papyrus, is near the center of bustling Harvard Square, a few blocks from the office where I was working at the time. I had walked over because I wanted to write a condolence note to my friend Steve, who had just lost his mother. Papyrus is an international chain based in San Francisco. It is one of several purveyors of high-end paper that have proliferated in the last decade, popping up on city streets and suburban shopping centers, as well as on the Internet. Somehow, even in the digital age, there is a market for handmade Japanese writing paper costing ten dollars a sheet.²²

I chose a box of basic cream-colored note paper, took it to the counter and handed the clerk my credit card. “Do you have cash?” she asked, explaining that the computer was down. I didn’t have enough – couldn’t she just get the charge approved over the phone? Alas no, she said, waiting for the approval takes forever. “It can be, like, ten minutes.” We stared at each other for a moment. “Couldn’t you go around the neighborhood and find a cash machine and come back?” she asked off-handedly, as if I’d created the problem and needed to fix it. “You’ve got to be kidding,” I said. She shrugged. I left the box on the counter and walked out.

It was almost unimaginable: A chain store in a modern American city demanding payment in paper currency. One of the paramount values of consumer culture is convenience, and I suppose I was punishing the store for violating that ethos. But then, think about the errand that had taken me to Papyrus in the first place. If I care so much about convenience, why was I

going to so much trouble to write a letter on paper, when I could write the very same words in an email that would take less than 5 minutes to compose and send, and arrive instantly at Steve's computer screen in Los Angeles, or, if he was traveling, on his Blackberry? The clerk was essentially asking me to make the same choice I'd already made, choose the paper medium over the electronic one, even though it required a little extra time and effort. And why not? The store *is* called Papyrus.

A letter is different from a dollar bill, but as media they perform the same fundamental task, transferring abstractions (thoughts in one case, monetary value in the other) from party A to party B. Both are containers. So why do they feel so different? I enjoy paying with plastic cards and look forward to the day when I won't have to carry any cash at all. Yet in other parts of my life, I still sometimes prefer paper over the electronic alternatives. Most of the news I read I get online in quick hits during the day. But there are certain situations (on an airplane), places (the kitchen table, the living room), and times of the day (first thing in the morning) when I prefer the hard-copy newspaper to the screen. So I pay hundreds of dollars a year to have two papers, *The New York Times* and *The Wall Street Journal*, delivered to my house.

Though paper has faded from some parts of modern life, in others it hangs in there, in spite of high technology and in some ways because of it. The printers and copiers that are fixtures of homes and businesses exist solely to spray electronic information onto paper. In a recent story about the efforts of American financial institutions to convince consumers to forego paper, *The Wall Street Journal* reported that "some paperless practices have caught on [I]n households with Internet connections, consumers are now paying more of

their bills online than by paper check But in other areas, consumers seem reluctant to relinquish paper completely. Just 15 percent of online banking customers have stopped receiving paper statements from their primary bank, according to a 2006 survey by JupiterResearch.”²³

From the end of World War II through 1990 – a period that coincides exactly with the rise of the computer – U.S. consumption of paper grew dramatically. Even in the last fifteen years, as the Internet has made the networking of computers seamless, and email and electronic documents have proliferated, consumption of paper for communications (writing and printing) has not declined.²⁴ One late twentieth-century study found that when offices began using email, paper consumption *increased* by an average of 40 percent. “The World Wide Web, far from decreasing paper consumption, served to increase the amount of printing done at home and in the office,” write Abigail J. Sellen and Richard H. R. Harper in their 2002 book, *The Myth of the Paperless Office*. “With the Web, people could access more information more easily than before, but though they used digital means to find and retrieve information, they still preferred to print it out on paper when they wanted to read it.”²⁵ Between 2000 and 2006, domestic consumption of printing and writing paper held steady at about 29 million “short tons” per year. Factoring in the population increase over the same period, this may indicate that paper use has effectively begun to decline, a trend some experts predict will continue in the coming decades. But for the moment, worldwide demand for all kinds of paper is still growing.²⁶ Print media in particular – books, magazines and newspapers – are booming in the developing world.²⁷

The persistence of paper flies in the face of a widely held popular assumption about technology, propagated over the years by breathless futurists and science-fiction writers. This is the notion that newer, more advanced devices inevitably kill off older ones, as the automobile famously did to the buggy whip. Paul Duguid of the University of California at Berkeley calls this concept “supersession,” meaning “the idea that each new technological type vanquishes or subsumes its predecessors.”²⁸ Supersession is closely related to the notion that new media are tools of liberation. Thus the most ardent enthusiasts of digital technology have argued that it will free us from the *ancien régime* of paper, epitomized by mainstream media outlets and their establishment values.²⁹

There is undeniably something thrilling and hopeful about a brand new medium and its promise of a clean break from the past. But, as Duguid points out, the supersessionists often fail to acknowledge the useful roles that old technologies play. He uses the example of hinged doors:

Since the twenties, one way people have known they were watching a film about "the future" . . . was the inevitable presence of sliding doors. The supersession of the simple hinge by automated sliding technology long ago became a visual synecdoche for the triumph of the future. Yet while the sliding door still appears on the futurological screen, the millennia-old manual hinge endures all around us (even on our laptop computers and cell phones). One reason it survives, I suggest, is that despite its technological simplicity, time has given the hinge a rich social complexity that those who foresee its imminent demise fail to appreciate. Hinged doors, after all, are not just to be passed through; they communicate polysemously. We can, for instance, expressively throw them open or slam them shut, hold them or let them swing, leave them ajar and hide behind them, satisfyingly kick, punch,

or shoulder them, triumphantly barge them open or defiantly prop them shut.³⁰

For several decades now, paper has been viewed much like the hinged door, as “a symbol of old-fashioned practices and old-fashioned technology.”³¹ In June of 1975, *Business Week* published a cover story called “The Office of the Future,” which various experts predicted would be paperless.³² Fast forward to the early 1990s, when digital messianism was running so high, it became incorrect in some circles to communicate on paper at all. In the introduction to one of the most talked about books of that moment, Nicholas Negroponte’s *Being Digital*, the author offered a three-point explanation-cum-apologia for why he was delivering his techno-visionary message in such a quaint medium, “an old-fashioned book” made of “atoms instead of bits.”³³

Some foes of paper have attempted to eliminate the medium by fiat. In 1993, the cutting-edge advertising agency Chiat/Day announced a dramatic restructuring of its organization. All the “trappings of traditional business,” as *Wired* magazine put it, would be eliminated.³⁴ No longer would workers be tied to desks or cubicles, or even to the office itself. They could work anywhere they liked, according to their own schedule. And all work was to be done virtually, i.e., on computers rather than paper. In Chiat/Day’s New York office a conference table was “coated with a soft silicone resin that had a magnetic effect on paper,” so anyone trying to work from a sheet of the forbidden stuff during a meeting would find they couldn’t pick it up. “Any sightings of paper triggered email memos reminding employees that this was supposed to be a ‘paperless office,’ with all files stored on the computer system.”³⁵

It appeared that *Business Week's* “office of the future” was finally becoming a reality. The experiment drew feverish media coverage, much of it hailing Chiat/Day as a trailblazer. The Associated Press reported that larger companies were following its lead; an executive at Ernst & Young averred that that global firm was aiming for “a paperless environment, with files, data and memos all handled electronically.”³⁶

Six years later, *Wired* returned to Chiat/Day and found that the paper-free paradise had never materialized, and in fact it was more like hell. Employees at both the New York and Los Angeles offices hated not having their own desks and missed their paper files. One woman brought in a red Radio Flyer wagon, which she would load full of paperwork and personal possessions and pull behind her up and down the hallways. “After six months, a counterrevolution was in full swing in both offices. In LA, people took to using the trunks of their cars as file cabinets, going in and out to the parking lot, in and out.”³⁷

Obviously, some technologies do supersede others. Paper itself is a case in point. When it first appeared about 2,000 years ago, it was an astonishing new gizmo, the iPod of its day. Tradition credits the invention to a Chinese official named Cai Lun, a eunuch of the imperial court.³⁸ Hoping to improve on the silk-based tissuey medium that the Chinese then used for writing, he experimented with various fibrous materials including tree bark, hemp, old rags and fish nets. These were macerated to a pulp, which was then mixed with water and drained through some kind of screen. When the resulting soggy mat dried, it was paper.³⁹

Cai Lun introduced his innovation to the court in 105 A.D and the Chinese became the first great papermaking culture. But the new technology did not immediately race across the world and triumph over existing media. It spread slowly, first to Korea and Japan, then west across Central Asia. In the year 751 A.D., the Chinese lost a battle in Turkestan. Some of the Chinese soldiers who were taken prisoner knew how to make paper and turned over the secret to their Turkish captors, and soon papermaking was underway in Samarkand.⁴⁰ From there, the technology moved around the Middle East and finally, at some point around 1,000 A.D., it reached Western Europe. The oldest known example of Western paper is The Missal of Silos, a church manuscript from the eleventh century preserved in a Benedictine abbey in central Spain.⁴¹

When paper arrived in a given society, rather than wiping out the existing communications media – which were, principally, papyrus and parchment – it moved in beside them. It was accepted and embraced to varying degrees, and over different stretches of time, depending on social, cultural and political circumstances. In Egypt, for instance, it appears that paper was quickly recognized as an improvement over the relatively inflexible and less durable papyrus (a paper-like writing material made from the stalk of the papyrus plant, from which paper takes its name). An Egyptian thank-you letter written around 890 A.D closes with the phrase, “Pardon the papyrus.” Since the note appears on higher quality papyrus, historians have assumed that the writer was apologizing for not using paper.⁴² By the eleventh century, Egyptian demand for paper was so great that “mummies were being disinterred for supplies of cloth for paper-making.” In Baghdad in the year 1226, there were more than one hundred papermakers and booksellers operating on a single street.⁴³

Even as paper thrived in the Middle East, Europeans received it tepidly. “The early paper of Europe was regarded with disfavour,” writes historian Dard Hunter, “as not only was it higher in price and more fragile than parchment, which had been used for bookmaking, but it was distrusted on account of its introduction by Jews and Arabs.”⁴⁴ In 1221, the Holy Roman Emperor Frederick II issued a decree forbidding the use of paper for public documents.⁴⁵ The suspect medium eventually caught on in Europe, of course, and ultimately superseded the older media that were there when it arrived. But that happened over many hundreds of years. By the middle of the fifteenth century, when Johannes Gutenberg invented the movable-type printing press, paper had been in use on the Continent for more than four centuries. Yet of the 180 bibles Gutenberg is thought to have printed, about one quarter had pages made of vellum, a parchment made of animal skin that was still preferred for important documents because of its beauty and durability.

In the literature of media studies, there is a determinist school which holds that technologies shape society. Whether it's the printing press, the telegraph or the cell phone, the new device sets the tune and people basically dance along. This is an appealingly facile way of organizing history, but in practice things are far more complicated. New technologies do not come out of nowhere. They are human creations in the first place and they succeed, or not, to the extent that they meet human needs. In other words, as much as communications media influence the way people of a particular time and place live, the reverse is also true: People have tremendous influence over how technologies evolve. Why do we still listen to the radio when television offers both sound *and* images? Why did the Apple Newton fail miserably, while the

Palm Pilot succeeded? When it comes to communication, we are a finicky, eccentric species. As a result, information media evolve unpredictably, not in a straight line but a wild zigzag.

For instance, Gutenberg's printing press famously changed the course of history, setting the stage for the Reformation and countless other social, political, and cultural shifts. What's less well known is that the arrival of print set off a tremendous explosion in writing itself – the old fashioned kind of writing, by hand. The handwritten books of the pre-Gutenberg era were time-consuming and costly to produce, and the class of people that was exposed to such things on a regular basis was a relatively small elite. The press made printed matter widely available, which in turn popularized and democratized the idea of written expression itself. Manuscripts were still produced in great numbers. And important new inventions for writing by hand, including graphite pencils and fountain pens, appeared. Stenography was invented, as was the script style called “round hand,” the forerunner of today's cursive handwriting. Various kinds of “secret writing” such as invisible ink and ciphers were devised for espionage and other purposes.⁴⁶

In short, even as the world-changing new technology was taking hold – and in some ways *because* it was taking hold – the older one gained new life. “The advent of printing was a radical incitement to write, rather than a signal of the demise of handwritten texts,” write Peter Stallybrass, Michael Mendle and Heather Wolfe, curators of “Technologies of Writing in the Age of Print,” a recent exhibit documenting this phenomenon at the Folger Shakespeare Library in Washington. As the artifacts brought together in this revelatory exhibit show, it wasn't simply a matter of print encouraging handwritten

communication. Rather, the two influenced each other back and forth, often in surprising ways. For example, the earliest printed books emulated medieval manuscripts, partly because in elite circles print was initially considered *déclassé*, a medium for the *hoi polloi*. But subsequently the reverse happened, as in the case of a hand-lettered document from 1657 that carefully mimics a printed one.⁴⁷

Particularly intriguing to the contemporary observer are the ways early modern Europeans used handwriting as a strategy for dealing with the sudden glut of printed matter. This abundance of information – which included not just books (which were still relatively expensive) but pamphlets, advertising placards, printed government records, and, by the early 1600s, proto-newspapers – was something entirely new and, for the time, startling. As the Folger curators observe, the situation was analogous to the “information overload” of our own time.⁴⁸ The challenge was how to navigate this bewildering sea of words, and make sense of it. Competing methods of shorthand, and schools to teach them, mushroomed. A new organizational tool – printed forms with blanks for filling in information by hand – was adopted by both the state and private business. And in the sixteenth century, an innovative device began to catch on, known as “writing tables,” or simply “tables.” This was typically a pocket-sized, printed almanac bound with blank leaves of specially coated paper or parchment that could be written on with a stylus and erased with a sponge.⁴⁹ The Folger show offered several examples, including one with printed user instructions: “Take a litle peece of a Spunge, or a Linnen cloath, . . . wet it in water, and wring it hard, & wipe that you ha(v)e written very lightly, and it will out.”⁵⁰ A busy sixteenth-century Londoner would carry his tables around during the day, jotting quick notes in them with

the stylus and erasing them later. It was the period equivalent of our own Palm Pilots and Blackberries, and it remained popular for hundreds of years. Thomas Jefferson and Benjamin Franklin both owned an ivory version that was in vogue in their time.⁵¹

The device even makes an appearance in Shakespeare's *Hamlet*. In Act 1 of the play, after the Prince first meets and converses with the ghost of his father, that specter vanishes with the famous, spooky farewell: "Adieu, adieu, Hamlet. Remember me." In reply, Hamlet basically says, "How could I possibly forget you?" spinning a metaphor in which he likens his memory to the gadget that Shakespeare's audience knew well – erasable tables:

Remember thee?
Yeah, from the table of memory
I'll wipe away all trivial fond records,
All saws of books, all forms, all pressures past,
That youth and observation copied there,
And thy commandment alone shall live
Within the book and volume of my brain

Reflecting on what he's just learned – that his uncle, the King, killed his father – Hamlet curses the murderer: "O villain, villain, smiling, damnèd villain!" This idea, that an assassin could walk around smiling, seems to strike him as a rather original insight and he pulls out his own writing tables to record it.⁵²

My tables,
My tables – meet it is I set it down
That one may smile and smile and be a villain.
At least I'm sure it may be so in Denmark.

[*He writes*]⁵³

That people still wrote by hand after the advent of printing is not remarkable. After all, there was no pocket version of Gutenberg's press that they could carry around with them. For any literate person, writing was still absolutely necessary. The point is that it became even *more* essential after print's arrival, and played a major role in the evolution and culture of that technology. As I shall argue, something quite similar is happening right now with paper and digital media.

Hamlet's tables reflect two other truths about people and their media that are as relevant today as 400 years ago. We have seen that new technologies do not necessarily eliminate old ones, at least not as quickly or predictably as is often assumed. However, when new modes of communication arrive, they do often change the role played by the existing media. Television did not kill off radio, but it did change the way radio figured in everyday life. Up until the early 1950s, the radio was a focal point of the American household. Families gathered around it to hear news, sports, political speeches, musical performances, comedy and variety shows, and other fare. By the early 1960s, television had taken over this domestic role, while radio, no longer a habitual gathering place, had become a secondary medium used for specific purposes – a favorite morning show or the baseball game that isn't televised. At the same time, radio found a place outside the home where it could once again be a focal point for entertainment and news: the automobile.

Likewise, as Hamlet's writing tables show, the arrival of print prompted a subtle but important shift in the role of handwritten media. For centuries, handwriting had performed two principal functions – communicating information and storing it. The distinction is simple: When you write a letter to someone, you are using handwriting to communicate; if the recipient keeps the letter for future reference, the handwritten contents become a form of storage. After Gutenberg, handwriting continued to play both roles (especially in person-to-person communication) but much of the storage work shifted to print. All through the Middle Ages, handwritten manuscripts had been the only long-term storage medium for history, philosophy, poetry, drama, philosophy, sacred texts and so on. By the time of the Renaissance, that had changed. A writer of the early seventeenth century would have composed poetry or plays by hand, but the final version – the one that wound up on a bookshelf – would have come from a printing press. None of the handwritten originals of Shakespeare's work survive; it was the folios and other early print versions that preserved his work for future generations. Though as important and vital as ever, and in some ways more so, handwriting had also become a more temporary, ephemeral means of expression. Hamlet's erasable tables are an apt symbol of this shift. The thoughts written on tables might later be transferred to a handwritten diary, but the point is that whatever words one committed to that device weren't really committed – they were there to be erased. Writing tables embodied the new status of handwriting in the print era.

Something similar has happened in our own time to paper. When a book is open on a reader's lap it is communicating; when it's sitting on a library shelf, it is storing the contents of its pages until the next reader comes along. In the

last thirty years, computers and other digital devices have taken over much of the storage work that used to be paper's job, while paper itself is used more and more for pure communication. There are myriad examples of this in everyday life. In 1977, if you wanted to save an important piece of information – a phone number, a recipe, an inspired thought – you wrote it down on paper and filed it away for safekeeping. Now we either commit important thoughts directly to our hard drives, or, if they begin on paper, we later transfer them to some kind of electronic memory for safekeeping. If you subsequently print out that file, you say you've printed a "copy," which generally only stays around for as long as you are using it and is then discarded. The "original" or permanent version is the digital one.

In 1992, futurist Paul Saffo described how paper was giving up its storage role and becoming mainly an "interface." In his insightful essay, "The Electronic Piñata," Saffo wrote: "Paper today has become an increasingly volatile, disposable medium for viewing information on demand. We are solidly on our way to a future where we create and store information electronically, reducing it to paper only when we're ready to read it, and then promptly disposing of it when we're done."⁵⁴ Anyone who has printed out directions from MapQuest before leaving on a journey and thrown them in the trash immediately upon arriving knows that he was onto something. *

Why does this functional change matter? Because it points to a fallacy in the popular "container" theory of newspapers and other paper media. As I mentioned earlier, this theory holds that it doesn't matter what vehicle is used

* As storage media go, digital technology is not always superior to paper. The rapid evolution of software and hardware often makes recovering old digital records more challenging than locating a filed-away paper document. Today's flash memory may be tomorrow's floppy disk.

to deliver information, as long as the information reaches its intended recipient. Of course, the main purpose of a container is storage. A Tupperware container stores last night's leftovers, and a newspaper stores news for the journey it must make between the printing plant and the reader's doorstep. But the argument that hard-copy newspapers are *just* containers implies that of the two roles paper performs, only one has value: the storage role. Since that happens to be the role paper is losing over time, it's no wonder that, by the lights of the container school, paper appears doomed.

Though paper's work has been shifting away from storage and toward communication, for some reason we seldom think or talk about what exactly happens when paper communicates. This is because media communication appears to be a form of transportation: Like UPS trucks, information technologies simply move product from one place to another. However, there is one important way in which they are not like trucks at all. After information arrives at its destination, something else has to happen for the communication to be complete: The individual must interact with the medium, using his or her senses and cognitive abilities to understand the content. In the case of paper, this is the moment when we pick up a sheet, or dozens of sheets joined together to form a newspaper, magazine or book, and begin reading. If we could get to the bottom of that moment – which we take for granted, though it's a profound, almost magical event – we might be able to say why paper has endured this far into the age of electronic media, and whether it will continue to figure in our lives.

Which points to the other reason why, in trying to make sense of our own media landscape, it's helpful to keep Hamlet and his erasable tables in

mind. Think about the situation the prince is in at this moment in the play. He has just heard the most staggering news of his life, that his uncle killed his father to usurp the throne. But is it trustworthy? After all, it came from a ghost, hardly the most reliable of sources. What should he do with this disturbing, somewhat dubious knowledge? He could turn and run straight back to the palace, repeating the shocking tale to anyone who'll listen. But would they believe it? Instead, the first thing he does is reach for his trusty tables, as if, by the very act of recording the gauzy encounter – *Meet it is I set it down* – he will give it substance, make it real. The table is a tether, a means of bringing this barrage of new information under control.

It's a human impulse anyone can recognize. Walk through an airport or down a busy city street and notice how often people take out their cellphones or PDAs, checking the screens for new messages. They're touching base, reminding themselves that beyond the ephemeral noise and confusion they happen to be navigating at the moment, they are anchored to something more solid and stable – the world of friends, family and work embodied by the inbox. *Let's see, any new messages?* is a mundane analogue of “My tables, My Tables.” All information technologies perform some version of the same service. Beyond just connecting us to the world, they *mediate* the torrent of voices and signals coming at us, imposing order on what would otherwise be chaos. But they don't all do it in the same way. Consider the popular technologies of this era. Television imposes order through pixels on a screen, a menu of channels, the remote clicker in your hand, and so on. The Internet also comes to us on a screen, but with a completely different set of mechanisms for mediating the flow, including websites, browsers and search engines. The same goes for the mobile phone, the iPod and every other

technology. Each has specific properties that shape not just how the content arrives but how we *experience* it. And each is suited to different purposes. Where a mobile phone suits one set of circumstances and needs, in another the best tool might be a notebook computer, the radio, or a paper magazine. It all depends on the kind of information being transmitted, and the needs of the person accessing it.

What is paper? A thin, flexible, opaque material that's very good at reflecting light. We think of it as coming from trees, but actually it can be made of many different things. While early Asian paper was made from a slurry of leaves, bark and other plant fibers, in the West the preferred material was cotton and linen rags, often from recycled old clothes. Most of the paper we use today is manufactured from wood pulp in an energy-intensive industrial process that's unfriendly to the environment in several different ways. But there are "green" papers that use no wood products at all. In their 2002 book *Cradle to Cradle*, William McDonough and Michael Braungart made the case for such paper through a concrete example – the book itself. "This book is not a tree," they write. "It is printed on a synthetic 'paper' and bound into a book format. . . . Unlike the paper with which we are familiar, it does not use any wood pulp or cotton fiber but is made from resins and inorganic fillers." This alternative paper looks and reads so much like "normal" paper, you have to study it for a moment and feel it to realize it's not. It is also, the authors note, "waterproof, extremely durable, and (in many localities) recyclable by conventional means."⁵⁵

The point is that the essence of paper resides not in how it's made or what it's made from, but what it *does*. And this is where things get interesting. Like any tool, paper does some jobs well and some not so well. And our perception of its "talents" has changed over time. When paper first appeared, it was valued for its lightness and portability, as well as the efficient way it stored information. But relative to electronic media, paper is heavy and slow, and, as discussed earlier, it is no longer the default choice for information

storage. In a digital world, paper actually has quite a few limitations: (1) It takes up physical space; (2) It can only be in one place at a time (virtual media can be accessed from anywhere); (3) It is difficult to alter or edit; (4) It does not play moving images or sound; and (5) It cannot network or connect to other media. The mystery is why a medium with so many disadvantages is still all around us.

In “The Electronic Piñata,” Paul Saffo argues that the ubiquity of paper is deceptive. Yes, there is more paper than ever before, but that’s because electronic technologies are growing at an even faster rate, while at the same time producing paper. In effect, paper owes its continued popularity to the newer media that are in fact supplanting it. To illustrate how this works, Saffo imagines the information media as a piñata:

The relationship between our use of paper and electronics parallels the relationship between the surface area and the volume of a sphere. As a sphere expands, its volume inside increases more rapidly than the surface area. The information industry today is like a huge electronic piñata, composed of a thin paper crust surrounding an electronic core. The paper crust is most noticeable but the hidden electronic core that produces the crust is far larger – and growing more rapidly. The result is that we are becoming paperless, but we hardly notice it at all.

For example, *The Wall Street Journal* is written and edited on computer screens, electronically composed and typeset, and then bounced off satellites to remote printing plants all over the country. The *Journal* isn’t reduced to paper in any meaningful way until just hours before it appears on our doorsteps. The same pattern can be discerned in our offices. Xerographic copies are a classic piñata technology – by

automating the once laborious copying process, they have buried us beneath an avalanche of fiber. It's the paper we notice, but the underlying process – the copier – shows how the function of paper is changing.⁵⁶

But why is the paper crust there at all? If electronic media are the engine at the heart of the information world (and this seems inarguable) why do they still need an interface as old-fashioned as paper? Modern interfaces are superior in so many ways. There are screens everywhere now, and they do things paper cannot do: show video clips and movies, play music, refresh themselves, interact with other screens. Saffo wrote his piñata piece 15 years ago; surely by now it should have burst.

Conventional wisdom says paper lingers out of habit. The medium has been with us for more than 2,000 years and we are having trouble letting go. In this view, paper effectively is what child psychologists call a “transitional object,” a security blanket we carry around to help us feel better during the rocky passage to a more advanced, “grown-up” media future. The flaw in this thinking is the assumption that paper is inherently inferior to newer technologies. As the lowly hinged door reminds us, this is not necessarily true. A wiser approach is to make no assumption whatsoever about paper's worth, relative status or future, and focus instead on how it does its job, right now in the real world.

In the last decade or so, a handful of researchers have looked at what happens when people interact with paper, and in some cases compared that dynamic to human interactions with other media. Their findings suggest that paper has intrinsic properties that (1) make it easy and enjoyable to work with,

(2) help us make sense of information, and (3) are conducive to certain kinds of reading and thinking. They are properties that the newer media, for all their wonders, have not yet learned to match.

In the mid-1990s, Abigail J. Sellen and Richard H. R. Harper, a married couple who are scholars of technology and cognitive psychology, conducted a study of how employees of the International Monetary Fund in Washington, D.C., managed the flow of information in their daily work. The IMF was chosen because it is a “knowledge-centered” organization that uses a lot of documents, and because it had invested heavily in technology. The IMF’s economists and administrative support staff had the latest computers and high-tech office machines at their disposal. For the study, a group of employees was given diaries and asked to record their activities all through the day for five consecutive working days. The diaries were supplemented by follow-up interviews. What Sellen and Harper discovered, and reported in their book, *The Myth of the Paperless Office*, was that, despite all the advanced technology at their disposal, the employees depended to an enormous extent on paper. For many of their most crucial daily tasks, such as reading documents, collaborating with others, and a category of work the study calls “thinking and planning,” paper was the preferred medium, even when there were digital versions of the same documents. What’s more, in tasks where computers were involved, paper also tended to be part of the process. For instance, when editing a document on screen, the subjects simultaneously used paper 89 percent of the time, typically spreading printouts of the reports and source materials they were using around their computers.⁵⁷

The study found that paper has inherent characteristics that make it useful. These are called “affordances” because they afford particular tasks. As it happens, many of paper’s affordances are rooted in its limitations – its physicality, the fact that it can only be in one place, etc. In other words, its weaknesses are also its strengths. The IMF employees liked holding documents in their hands as they worked with them. They said that marking up and editing their work was easier and clearer on paper than on a screen. When working in face-to-face meetings with colleagues, they liked the way that paper documents could be conveniently passed around and discussed, something that’s harder to do with a computer screen, even the smallest, lightest kind. They even appreciated the fact that paper takes up space, explaining that the clutter of paper in their offices was not as random as it appeared. Rather, the stacks and piles helped in the “thinking and planning” department, by forming “a temporary holding pattern . . . that serves as a way of keeping available the inputs and ideas they might have use for in their current projects. This clutter also provides important contextual clues to remind them of where they were in their space of ideas.” That is, the paper served as a physical representation of what was going on in their minds, giving abstract thoughts and plans “a persistent presence” in their lives.⁵⁸

Among the comments the IMF workers gave the researchers, the most striking one came from an employee whose job it was to review other people’s written reports. This person explained why paper was better suited to that task than a computer screen. “You’ve got to print it out to do it properly. You have to settle down behind your desk and get into it.”⁵⁹ Those phrases, “settle down” and “get into it” suggest a state of mind associated with a particular kind of reading – the full-immersion, deep-dive kind that occurs when a reader

is able to shut out the world and truly focus. Does reading on paper somehow help create that state? In a different study that looked at how people in various professions read, Sellen and Harper found that paper has four affordances that specifically assist reading:

(1) Tangibility. This refers to the way that we navigate a paper document or book using our eyes and hands together. “When a document is on paper, we can see how long it is, we can flick through the pages . . . we can bend over a corner while searching for a section elsewhere. In other words, paper helps us work our way through documents.”

(2) Spatial Flexibility. When working with multiple paper texts, they can be spread out around a large area or reduced to fit a smaller space, depending on our needs.

(3) Tailorability. With paper it’s easy to underline, scribble in the margins and otherwise annotate a text we are reading.

(4) Manipulability. Because paper can be moved around, one can shuffle effectively among different paper sources, for example putting one page aside in order to concentrate on another.⁶⁰

The first of these, tangibility, isn’t available at all on a two-dimensional screen. The others are more difficult to achieve with computers and other electronic media, as anyone who has “written” in the margins of a digital document can attest. As the authors put it, “It is as if people need to use their hands and eyes to fully grasp the meaning of the text in question. People really

do understand what a document conveys by physically getting to grips with it. Given this, the limits of electronic alternatives (at the current time at least) are all too clear.”⁶¹

Still, this doesn't fully explain how paper fosters the state of focused reading that the IMF employee described. Indeed, Sellen and Harper's book often suggests that paper is at its best when one is juggling different documents and functions – say, writing, editing and reading – a mode that seems closer to multi-tasking than settling down. However, these two notions are not as contradictory as they seem. Rather, within a multi-tasking context, printed documents make it easier to focus on *each specific task*, and to carry that focus from task to task. In other words, though the computer is in some ways the ultimate multi-tasking tool – everything is a click away – for productive multi-tasking, paper has an edge, rooted in its tangibility. Because online documents have no physical presence, when we're reading them the eyes and the brain are constantly at work figuring out where we are in the text, not just on the page displayed but in the document as a whole and vis-à-vis other open documents, as well as where we need to go next. The online reader expends a great deal of mental energy just navigating. Paper's tangibility allows the hands and fingers to take over much of the navigational burden, freeing up the brain to think.

Sellen and Harper describe how this works:

“[T]he physical feel of the paper meant that little attention (and especially visual attention) had to be given over to the task of page turning. Much of the information needed to navigate was both implicit and tactile. Similarly, physical cues such as thickness of the document provided important tacit information about where in the document the reader was. All

of this . . . meant that readers were not distracted from the main visual task.”⁶²

In contrast, one of their subjects had this to say about online reading: “I was getting very annoyed and clicking on those things and shouting at it . . . I just found that it took ages and ages. I was losing interest – it was distracting me from the point.”⁶³ Most of us don’t shout at our screens, and improvements in digital technology have made the experience less frustrating than it was a decade ago. But everyone knows that reading on screen is still a different experience from reading on paper – more taxing, less conducive somehow to extended concentration. Other researchers have identified additional reasons for this, including the simple fact that light-reflecting paper is literally easier on the eyes than light-emitting displays.⁶⁴

The research discussed above focuses on the workplace. In fact, much of the media content people consume every day has no direct relationship to their work. Do the qualities that make paper so useful at work translate to the reading undertaken mostly or purely for pleasure? The parallels seem obvious. The “settled down” state the IMF employee described resembles what happens when anyone curls up at home with a good book. For some reason – perhaps because this private reading experience is so universal that we take it for granted – little academic research has been done on the cognitive dimensions of pleasure reading.⁶⁵ However, the subject is of urgent interest in one corner of the business world: the print media industry, where the future of paper-based periodicals, and the advertising that supports them, is in doubt.

A few years ago, Condé Nast Publications commissioned a market-research study that sheds some light on paper’s role in pleasure reading. Condé

Nast is one of the world's premier print-media outlets, publisher of *Vanity Fair*, *The New Yorker*, *Vogue* and other well-known titles. The company is privately owned and does not release its financial results, but it has a longstanding reputation as a well-run, highly profitable enterprise. In early 2006, when Time Inc. was laying off employees and the future of magazines seemed in doubt, one well-known magazine consultant said: "When the lights get turned out in the magazine industry, it will be Condé Nast that turns them out."⁶⁶ To put it another way, if anyone can continue making money from printing words and images on paper, Condé Nast can.

In 2004, the company was planning a new marketing campaign aimed at advertisers. The message would be that readers have a special relationship with magazines, and with Condé Nast magazines in particular. Such campaigns are more convincing if they are backed up by market research, which is typically quantitative – showing, say, how many people in key demographic categories read a particular publication. In this case, Condé Nast decided to try something a little different. The company's chairman, S. I. Newhouse Jr., had read an article about Gerald Zaltman, a Harvard Business School professor (now emeritus) who has written extensively about the role of the unconscious in consumer decision-making.⁶⁷ Drawing on neuroscience, psychology, literary theory and other disciplines, Zaltman's work argues that the human mind interprets experience through metaphors, and that businesses should incorporate these notions into their efforts to market products to consumers.⁶⁸

The research and consulting firm Zaltman co-founded, Olson Zaltman Associates, conducts studies based on these ideas. Its long client list includes such large corporations as Intel, Samsung, Bank of America, and the Walt

Disney Company, as well as nonprofit groups and governments.⁶⁹ Departing from the focus-group method that is the basis of traditional marketing studies, Olson Zaltman conducts intensive one-on-one interviews with individual consumers, using a patented technique it calls “metaphor elicitation.” Five days before each interview, the subject is asked to collect six to eight pictures that reflect how they would answer a simple question related to the client’s product or service: “What are your thoughts and feelings about X and the role X plays in your life?” Thus if X were health care, the subject might clip a magazine image of shark-infested waters, symbolizing how treacherous it can be trying to find good care. Another person might bring a photo of a healthy, laughing baby, to capture the good things the medical profession brings us. The images, which are metaphors themselves, are the starting point for a probing interview lasting two to three hours that seeks to uncover the subject’s unconscious thought processes about the topic, or what they “don’t know they know.” In particular the interviewer is looking for what Zaltman calls “deep metaphors,” or broad concepts that people use to organize and impose meaning on information. Examples of deep metaphors are: Journey, Transformation, Control, Container and Resource. At the end of the interview, the subject sits at a screen and makes a collage from digital scans of the images, which serves as a visual summary of the discussion. The client ultimately receives a report distilling the interviews into relevant themes and suggesting implications for the client’s business.

Condé Nast hired Olson Zaltman to investigate how consumers respond to magazine and television advertisements and, implicitly, if there is a difference in the response. A 2003 study by the TiVo company had found that the more consumers like a television program, the more likely they are to record it and to

skip the commercials. In other words, the more engaged the viewer is by televised content, the less interested they are in watching the ads. Condé Nast's hypothesis was that in magazine reading the dynamic is the opposite – the more readers like the content, the more receptive they are to the ads – and that the difference lies at least partly in the way paper communicates.⁷⁰ Obviously, if this could be established, it would be very good for Condé Nast. Surveys of this kind are not comparable to disinterested academic research. However, they can be useful for what they reveal about the marketplace forces driving a given industry. Olson Zaltman's methodology is designed to avoid bias, and its interviewers are trained not to prompt subjects for particular answers. Zaltman says the firm's clients do not always get the results they seek.⁷¹

Thirty-six consumers were interviewed, half of them frequent magazine readers. The other half were people who watched at least two hours of commercial television a day and also read at least one magazine a month.⁷² The study found that the way consumers react to ads in hard-copy magazines is in fact very different from how they respond to commercials on television. The distinction came down to a matter of control. Because viewers cannot control when TV commercials are shown or how long they will last, they tend to feel trapped by the ads, which those in the study spoke of as disruptive, distracting and annoying. One subject's collage featured an image of a man lying down, superimposed on the face of a clock. This person explained: "I feel like it's a waste of my time, which is the clock with the man stuck on his back because he's stuck watching something that just has nothing to do with him." Many of the images were chosen to reflect the frenetic, clamorous quality of TV advertising. One showed a scene from "The Three Stooges" in which Curly's head is in a vise, and Larry and Moe are pulling at him from opposite

directions. The consumer's comment: "They're trying to get someone to pay attention to . . . whatever the ad is for, something going, 'Whoo, whoo, look at me! Over here, over here!'"

Other images showed handcuffs, the devil, and a trash can overflowing with garbage. "It feels like I'm being polluted," one person said. The study concluded that commercials turn the TV experience into "a battle for control," forcing viewers to retaliate through such measures as changing the channel, leaving the room, or using TiVo and similar devices to avoid commercials. When asked to select the color that best represented their thoughts and feelings about TV advertisements, the subjects tended to choose red, a color that, according to the report, is associated with stimulation and action, as well as distraction, anger and disruption.⁷³

Meanwhile, the subjects had largely positive views of ads in magazines, and the main reason seemed to be the sense of control that paper inherently affords: The reader turns the pages at will, deciding what to look at and for how long. One subject said: "A magazine ad is like a glass of wine because I have the time to sniff it and appreciate it . . . It's there, I can take it or leave it . . . Because I have control, I can take the time to make particular decisions [about] which ads I will savor and absorb." A sense of control was also reflected in the way readers interpreted the content of the advertising, which was variously described as inviting, "laid back" and "like an embrace." One of the interviewees brought an image of a beautiful woman wrapped in a blanket, to reflect that magazine ads are "soft" and "natural" like "luxurious cashmere."⁷⁴

They praised the way magazine ads often invite the reader to participate in deciding what the content means, a process that Zaltman calls “co-creation.” Television ads can do the same thing, but the consumers’ comments suggested that with magazines it was easier to feel like a participant. One person said the best magazine ads “don’t have an obvious connection between the images and the story and the product.” Another commented, “I project some of my own feelings onto the ad; that’s very important because I become more a part of it, it becomes more than just a piece of paper.” In some interviews, the ads were described as a respite from a chaotic world. One subject said: “Magazine ads have a sense of order and peace to them and if you can get a snatching of serenity there or anywhere, you’d better take it.” In the same vein, the color the subjects most often selected to express their thoughts and feelings about magazine ads was blue, representing calm and relaxation.⁷⁵

The divergent perceptions of the two categories of advertising were reflected in the “deep metaphors” Olson Zaltman identified in its report:

Magazines	Television
Container	Movement
Control	Lack Control
Resource	Imbalance
Connection	Lack Connection
Journey	Fight or Flight ⁷⁶

In this case “container” has a different meaning from the one discussed above in relation to media theory. Here it refers to the subjects’ sense that a magazine *holds* information rather than *projecting* it outward. It’s the same reason we say we saw something “in” a magazine, but “on” television. To discover the contents of a magazine, you have to go inside and look around. But you stay outside a television, sitting and watching as it displays its wares.⁷⁷

The study suggested that the sense of control and participation offered by magazines has implications not just for readers but for publishers. Scott C. McDonald, Condé Nast’s senior vice president for market research, says that the way magazines manage control is somewhat paradoxical. Because paper is “lighter in its assertion of control,” it draws the reader in, and they engage with the content – not just ads, but all content – more fully. “It’s a sort of Zen thing. By giving it up, you are actually in a stronger position.”⁷⁸

Of course, this small study was hardly scientific, and what people *tell* researchers they prefer does not always reflect their behavior in real life. The results not only confirmed Condé Nast’s hypothesis, they served its commercial purposes, and the company touted them in its campaign to woo advertisers. But the promotional motives of the exercise are themselves revealing. In a world of contending technologies, each vying for audience share and the advertising that comes with it, purveyors of content must constantly make the case for their respective media. And that case rests not just on how many people are reading or tuning in, but on the quality of their attention, which in turn is linked to the properties of the technology.*

*Magazine ads are also frequently compelling because their content mirrors the reader’s interests. A magazine for cat lovers will be full of ads for cat-related products. Television ads are also targeted at viewer interests, but

The argument Condé Nast is making – that a message printed on a humble piece of paper can be more involving in some ways than the audio-visual dazzle of a TV commercial – seems on its face illogical. Didn't television become the dominant entertainment medium precisely because it's so good at grabbing and holding our attention? As we've seen, however, the more modern technology doesn't always render the older one worthless. Like the hinged door, paper magazines have thrived deep into the electronic age because the way they convey information remains, for some purposes, more useful and satisfying, in ways that can be hard to describe except anecdotally. The question is always the same: Which technology best serves a given human need?

Magazines printed on paper are still turning a handsome profit, and seem less threatened than newspapers (if only marginally), because the content and reading experience they offer doesn't translate to electronic screens, at least as they have evolved so far. The publisher of *Advertising Age*, Scott Donaton, who wrote in 2006 that newspaper publishers need to get over their “emotional attachment to ink on paper,” says magazines are different from newspapers. Because many offer a sense of escape or fantasy that at the moment can't be replicated on screen, they are likely to remain on paper for the foreseeable future.⁷⁹

Condé Nast's Scott McDonald, who has a Ph.D. in sociology from Harvard, writes and lectures often about the way people engage with media, including the digital medium in which his company has a growing presence. He

because television is more of a mass medium, it cannot “niche down” to the same degree. Here again we see paper's tailorability in action.

says reading content on paper – any content, not just ads – seems to create its own mental space, a state of consciousness sometimes known as “flow.”⁸⁰ That term comes from the work of Mihaly Csikszentmihalyi who, as a professor of psychology at the University of Chicago, investigated how people achieve happiness, and summarized his findings in the 1990 book, *Flow: The Psychology of Optimal Experience*. In addition to interviews and questionnaires, he used a technique called the Experience Sampling Method, in which subjects wore an electronic pager that signaled them at random intervals during the day to write down what they were feeling and thinking at that moment. Synthesizing data gathered from thousands of subjects in numerous countries, Csikszentmihalyi constructed a theory of what constitutes the state of consciousness he calls “optimal experience,” or flow, and how it is achieved. His work was in many ways the forerunner of the now-burgeoning field of happiness studies.⁸¹

In essence, flow is what happens when one is so absorbed in an activity that the world seems to fall away. The activity can be as simple as working on a jigsaw puzzle or as complicated as flying a plane, as long as it produces “a deep but effortless involvement that removes from awareness the worries and frustrations of everyday life.”⁸² In flow, there is no sense of time or distraction, just complete immersion in the moment. According to Csikszentmihalyi, one achieves this state by learning to “control inner experience” and find “order in consciousness.”⁸³ The pursuits that induce it tend to have a sense of boundedness or limits; most are goal-directed tasks that have a reasonable chance of being completed. There is no satisfaction in doing a puzzle that doesn’t fit together, or shooting baskets against a backboard with no hoop.

Though reading is one of the flow activities most often cited by his subjects, Csikszentmihalyi doesn't devote much of the book to it. But then, he doesn't have to. Every reader knows the bliss of getting lost in a book, or for that matter any print medium that is read with sustained attention and interest. Immersing oneself in a good magazine or newspaper is a reliable route to flow's "merciful oblivion."⁸⁴ But what about the relatively new kind of reading that is done online using various kinds of screens? *Flow* was published in 1990, when the Internet was in its infancy. Sellen and Harper's *The Myth of the Paperless Office* revealed some of the shortcomings of screen-based reading, but research for that book was also conducted in the early years of the Web, and it was limited to work-related activities. In the last decade, digital reading has become a part of everyday life, yet it hasn't replaced reading on paper.

McDonald says that at the moment screens are not used predominantly for flow-style reading – settling in and losing one's bearings – but for a kind of high-intensity foraging. "When one is reading on the screen, it's sort of like speed reading, information-retrieval mode. 'I'm looking for something. Now I'm looking for something else.' It's very purposeful, it's very utilitarian. . . . There's something about it being on the screen that signals to people to hurry. It's pushing the page-down button, just having your finger on the clicker and scrolling. It's a higher speed, more nervous kind of thing." Screen-based reading, he says, is "very much about 'search and destroy.'"⁸⁵

In other words, because of the way the digital medium interacts with the human body and brain, it serves different purposes from those served by paper, and those purposes correspond to different states of mind. One might even say each has its own preferred kind of content. Perhaps the medium is the

message, but in a very practical way we also *choose* the medium that best suits the message, which is the content being communicated. This is reflected in the functions we assign to digital media, and those for which they seem not quite right. E-mail is wonderful for many kinds of personal communication, but there are still situations when it makes more sense to pick up the phone, or even a sheet of paper. The iPod is hugely popular but e-books have never really taken off, despite countless product launches by major high-tech companies. When it comes to delivering news, screens work well for short-form reportage and commentary that can be read quickly in rapid “information-retrieval” mode – breaking news, wire-service fare, opinion columns and blog posts under 1,000 words. But for long stories and essays requiring sustained attention and focus, readers still gravitate to paper, where they can “settle down” and find that “snatching of serenity.”

This distinction between paper and screens is not just a function of the physical control the former provides. A more abstract sense of control and order also inheres in paper. Because it is made of atoms rather than bits, a sheet of paper exists in the world in the same way that a table or a person exists. When this obvious fact is discussed at all, it is generally counted as one of the medium’s flaws: It’s a *problem* that paper takes up space. But that same fixity in time and space has other important implications. First, it means that, as compared to electronic media, paper is relatively immutable. Once you have printed words on it, removing them is not easy. Again, this is typically considered a nuisance; one thinks of rubber erasers, on the one hand, and on the other of how convenient it is to write on a screen where any word can be erased with a keystroke. In paper’s role as a reading interface, however, immutability becomes an asset. Unlike a Web page that can be changed in the

blink of an eye, a paper document implies a certain commitment to the content it carries. The book you place on your nightstand as you drift off to sleep will be exactly the same book when you wake up in the morning. The newspaper you hold in your hands cannot make an erroneous story about, say, presidential election returns in Florida, disappear as if it had never existed, as online news outlets have been known to do.⁸⁶ This lends paper an intangible but nonetheless meaningful, dimension of stability. It literally stands by its own words.

Second, the physical boundedness of paper makes it an inherently *selective* medium. A hard-copy document can hold only as much information as will fit on its pages, and it cannot link to other sources except by verbal reference. Digital media, in contrast, seek to be all-encompassing; their goals are maximum connectivity, infinite access. As the slogan of one satellite-radio company puts it, “Everything all the time.”⁸⁷ It’s often wonderful to have so many resources at one’s fingertips. What could be more satisfying than entering a phrase into Google and pulling up exactly the nugget you need? But the immensity of the digital trove also makes it inscrutable, unwieldy and, at times, overwhelming. A Google search on “Shakespeare” returns more than 45 million results.

Paper’s slogan could be, “Just this one thing.” Precisely by being finite, it imposes order on the vastness of the information universe. Anything printed on paper is a selection, a standalone packet of ideas pulled out of the macrocosm – not just information but implicitly someone’s idea of knowledge. In a relentlessly networked world, the fact that a physical library cannot contain everything becomes an advantage. As John Seely Brown and Paul Duguid write in their book *The Social Life of Information*, “it has become increasingly clear that libraries are less ‘collections,’ than useful selections that gain usefulness from what they exclude as much as what they hold.”⁸⁸

Finally, there is the simple fact that while paper itself can be moved, the words printed on it do not move. As the Web becomes more of a video medium, it is taking on many of the characteristics of television, the movement and the sense that information is projecting out of the screen rather than sitting inside – that “Who, who, look at me!” quality. Reading an online news article while two human silhouettes dance frantically nearby in an ad for LowerMyBills.com is very different from reading that same article on a motionless page. The embedding of video clips from YouTube and similar services in the text of online content changes the texture of the reading experience, even if you don’t click on the “play” arrow. As Web pages shed the paperlike stasis they once offered, online reading is becoming a hybrid of reading and viewing. As always, paper just sits there, watching from the sidelines.

One of the chapters of *Flow* is entitled “Cheating Chaos,” the author’s shorthand for what happens when one learns to control the content of “inner experience.” In various ways, this is exactly what paper helps us do, now more than ever. It becomes a still point, an anchor for the consciousness. It’s a trick the digital medium hasn’t mastered – not yet.

If paper works so well for people, what's wrong with newspapers? Perhaps the problem is not with the pages the news is printed on, but the news itself. As we've seen, people tend to choose the medium that best suits the message. Newspapers publish many different kinds of information, but their core offerings break down into two basic categories: (1) hard news about local, national, and international events – most of it relatively short, direct and easy to digest; and (2) “slower” kinds of content such as feature stories, profiles, longer investigative pieces, criticism and commentary. The traditional culture of newspaper organizations is itself divided along similar lines. At the heart of the classic newsroom are the reporters and editors who thrive on breaking news. This is the type who, in the pre-Internet era, would be seen darting back and forth like waterbugs to the clicking wire-service machine, and who crave nothing more than a hot exclusive. But at every metropolitan daily of any consequence there has always been another, smaller cadre of a different temperament, the ruminant class of editorial writers, columnists, critics and feature-section stylists whose work aims not so much to report about the world as to make sense of it.

This is a crude simplification. Most newspaper journalists have some mix of the two sensibilities, and the work they produce often reflects both. The piece that is both newsy and thoughtful is the craft's beau ideal. The point is that the newspaper not only accommodated both approaches, it subsumed them into a larger whole that served a panoply of social, cultural and political purposes. As an institution, the newspaper is not just a source of information, a mere “content provider.” For centuries, it has been one of the few places

outside the government where a democratic society could collectively talk to itself, seek the truth and try to decide what is right. That work, the epitome of a “public good,” relies on both sides of the institution’s brain, and the reader’s. Pure news is meaningless without understanding, and true understanding is impossible without accurate information about the world. The two came together on paper, which, for a very long time was the best available medium for sending and receiving both kinds of “messages.” American journalism, the most vital in the world, grew up on and around paper. It thrived because the information on those newsprint sheets was stimulating and useful to people, and there was no more effective way to obtain it. They bought the sheets and read them avidly, which in turn drew advertisers.

When newspapers first moved to the Internet, it was not obvious that anything would be lost. The core product was technically the same – same headlines, same stories and pictures – and the new format was superior in so many ways. Online newspapers are more timely and interactive than paper ones, and the digital medium lends itself to many new kinds of content. The product is cheaper to produce, much easier to deliver and accessible anywhere there’s an Internet connection. And no trees die in the process. Newspaper publishers initially decided not to charge for content, expecting – or at least hoping – that the advantages of the medium would eventually make it as appealing to subscribers and advertisers as paper had been, and that it would prove as profitable. It hasn’t been, certainly not in the way that news on paper has been profitable. This is partly due to the fact that the Internet is full of free content, and people are understandably reluctant to pay for news that is available elsewhere for nothing.

But something is also missing. The various properties, from the physical to the philosophical, that paper brings to the media transaction are absent when one is reading a newspaper online. Common sense suggests this shouldn't matter. Who cares how content arrives as long as it arrives? But common sense doesn't account for the many subtle ways a medium can remain useful despite, and even because of, competition from other technologies. "Tools fight back when they offer people worthwhile resources that may be lost if they are swept away," write Brown and Duguid.⁸⁹

Millions of people still pay money every day for newspapers, though they can obtain the same content online. One of the most commonly heard explanations for this is that it's a generational issue: Those who still prefer hard-copy newspapers are, like the sentimental older journalists who write nostalgic columns about paper, just attached to the medium they grew up with. It's true that the demographics of newspaper subscribers have been growing older for years. But older people are not immune to the tremendous value of the Web, which they use in huge numbers. "Surfing Net is Top Pastime for Elderly," said a recent headline in the British newspaper, *The Daily Telegraph*. The story was based on a survey of retired people in 11 countries conducted by the insurance company AXA. It found that spending time online has surpassed do-it-yourself work and gardening as the most popular hobby for retirees. Retirees in the United States spend an average of 9 hours per week online, the most of any of the countries surveyed.⁹⁰

On average, young people no doubt spend more time online, not just reading but communicating with friends. But then, it's only natural that a medium offering exciting new possibilities for self-expression and human

connection would draw the young. It would be disappointing if they *hadn't* embraced the Web. The question is, are they finding there everything that paper-based media have always offered? *Romanesko*, a media-news website run by the Poynter Institute, recently ran an item under the headline, "I love journalism, but I have no love for the paper news." The link led to a piece by David McRaney of *The Student Printz*, a student newspaper at the University of Southern Mississippi. After confessing his loveless feelings about paper, McRaney continued, "I see it as inferior to the Internet in most of the ways I prefer to get my information, but I do not think it has no value. The paper news should provide long-form, in-depth coverage, while the Internet should be interactive, immediate, provide an open dialog with the audience and throw in all those nifty doo-dads and videos people love to play with."⁹¹

This distinction is not so much generational as operational. The digital medium serves up content differently from paper, and we go to it for different kinds of reading experiences – "search and destroy" versus "settle down." It has little to do with age and everything to do with the human mind, which does not evolve so quickly that those born after 1980 read and think in a fundamentally different way from everyone who came before them. In effect, the content that works best on the Web, for readers of all ages, has migrated there, while the "long-form, in-depth" stuff clings tenaciously to paper (even when it's on the Web, people are less likely to read it there). Thus the public exodus from newspapers is not a rejection of paper, but an objection to using it for hard news and other utilitarian, quick-read content (including, not incidentally, classified ads) that gains little or nothing from arriving in that format. It's because this content has always been the core mission of newspapers – they're called *newspapers*, not *essaypapers* – that the industry finds

itself in the tough spot it's in. The two sides of its culture have been pulled apart, and the side that drives the franchise wound up in a not-so-profitable medium.

From a reader's perspective, the new dichotomy makes perfect sense: Graze the latest news and chatter on the thrilling new medium that literally plugs you into the world. And when you want a long, thoughtful read, pick up a magazine or book. There's just one catch: It could be killing newspapers, which is bad news for everyone. For all the griping about the institutional constipation of traditional American newspapers – much of it deserved, and a fair proportion of it coming from inside the papers themselves – the fact is, they still produce the vast majority of the journalism that really matters, the groundbreaking work that illuminates the dark places in society and keeps governments honest. Television and radio follow the lead of newspapers, and most of the substantial reportage one sees on Yahoo!, Google and similar sites is newspaper fare. There are numerous promising Web-only news operations, including fine blogs with aspirations to do the job newspapers have always done. But at the moment none come close. The centrality of newspapers to the larger ecology of journalism is taken for granted, because it's amorphous and unquantifiable. In a speech last year, John Carroll, the former editor of *The Los Angeles Times*, tried to put a number on it: "I wish I could tell you precisely how much of America's news originates in newspapers, but apparently there's been no definitive study. So, instead, I've been asking smart people to make estimates. So far, nobody has given me a figure lower than 80 percent."⁹²

Can anything put the Humpty Dumpty that is the modern newspaper business back together again? Every week seems to bring a new plan. Some

are premised on the idea that newspapers need to completely rethink their mission. One widely discussed study commissioned by the American Press Institute concluded that newspapers should stop viewing themselves simply as publishers of news. Instead, they should try to identify other jobs consumers might “hire” them to do, much as they “hire” a milkshake at a fast food restaurant.⁹³ Some papers have forged various kinds of content and advertising deals with online portals. Others have tried to divide up their content in a way that takes into account the different things people seek from paper and the Web. When *The Wall Street Journal* launched a redesign at the end of 2006, publisher L. Gordon Crovitz explained to readers the distinct roles the two versions of the newspaper would play: “Your print *Journal* will be a daily oasis of context, perspective and knowledge, while WSJ.com will be the ultimate source of what’s-happening-now news.”⁹⁴

In a very different approach, *The New York Times*, in addition to its popular website, now offers a Web “reader” that tries to mimic some qualities of paper. Times Reader, as it’s called, downloads the contents of the paper, which can then be read via a special software interface. “Introducing a digital newspaper that reads like the real thing,” announced a recent advertising supplement in the hard-copy paper.⁹⁵ The interface is pleasant and intuitive to use, in part because the copy closely resembles print on paper. But there’s another, perhaps more important reason it reads more like “the real thing” than other digital renditions of newspapers: Once the latest edition of the *Times* has been downloaded, it can be read and explored offline. This unplugged mode lends the whole experience a psychic semblance of paper’s boundedness and autonomy. You are not out in the vastness of the Web, the seconds ticking

before you fly off elsewhere, but enclosed in the finite space of a single day's "paper." It's almost cozy.

It makes sense that the *Times*, of all newspapers, would move in this direction. Though it breaks plenty of news, it also strives harder than most newspapers to be thoughtful, analytical, even literary. It is the ruminative daily par excellence, which is why the phrase "Sunday *Times*" evokes thoughts of long hours in a comfortable chair. But because it is screen-based, the *Times* Reader can't quite replicate that trance-like absorption. Its "pages" are two-dimensional and intangible, so they don't "relate" to the hands, eyes and brain in the same way. It is not flexible, tailorable or manipulable. After a while, it begins to feel like an android imitation of paper, a decent likeness but no soul. One occasionally has the urge to pull it out of the screen and give it life.

And that is where the technology may need to go if it wants to save newspapers: toward a new medium that brings digital reading into the third dimension, incorporating all the best qualities of the Web and real paper. Such a hybrid would be the best hope for reuniting the two sides of newspaper's personality. In fact, high-technology companies have been working for many years to develop exactly this sort of product. Electronic paper or e-paper, as it's known, is not being developed primarily for newspapers. When the concept is discussed in the media and elsewhere, newspapers often are not even mentioned. Instead, books based on the e-paper model have generated much of the excitement.

The basic idea is to create a new type of display that looks and feels like paper, and has the same spatial presence, but with embedded electronics that

allow it to connect to the Internet. Thus the content could be electronically refreshed or changed. One of the most promising of these technologies is manufactured by a Cambridge, Massachusetts, company called E Ink. Based in a renovated nineteenth-century factory, E Ink was founded in 1997 by a small group of entrepreneurs, among them Joseph Jacobsen, a professor at the Massachusetts Institute of Technology and co-founder of the MIT MediaLab. Company folklore has it that Jacobsen had an inspiration one summer day when he was on the beach reading a book. When he got to the end, he thought, “Wouldn’t it be great if I could wave a wand and turn this into another book?”⁹⁶

In fact, e-books are a perennial topic of excitement in the high-tech world, and a perennial nonstarter. In December 2000, the cover of *Time Digital*, a now-defunct Time Inc. magazine about technology, ran a feverish story about the coming “e-book revolution.” The cover image showed Shakespeare grasping an old-fashioned book version of *Hamlet* as he peered over the shoulder of a beautiful modern woman in a leather jacket. The woman was holding an e-book; Shakespeare was astonished.⁹⁷ E-books have not taken off for a number of reasons. Most have used LCD displays, the same technology behind today’s computer and cellphone screens. Unlike paper, which reflects light, LCDs emit light, which makes them hard on the eyes and therefore the mind. “One of the main jobs of the brain is to decide what not to pay attention to,” explains James L. McQuivey, a technology analyst who follows e-books and e-paper for Forrester Research in Boston. “One of the problems with direct light is it’s constantly asking for attention, and your brain gets tricked by it into constantly focusing, not only visually but emotionally.”⁹⁸

The other problem is that e-books lack most of paper's essential attributes. Some years ago, I visited the Tokyo offices of a company that was one of Japan's leading e-book developers. Toward the end of an interview with one of the executives – much of which was about the many obstacles e-book technology had to overcome – he lowered his voice and said in English: “Perhaps I cannot tell what I want to say. Book means paper book, not electronic book Almost every reader feels this way Paper book will remain very, very long time.”⁹⁹

E Ink is attempting to correct the very flaws that have kept previous e-paper technologies from working like authentic paper. The company manufactures “electrophoretic” imaging technology, which uses a liquid made of tiny particles that can be coated in pigment of any color. When this “ink” is inserted in an electronic field between two planes, the particles can be made to rise or fall, forming text and images on the surface of the upper plane, which is the reading display. Like old-fashioned paper, the display reflects light. It is also “persistent,” meaning that once the letters have been formed on the screen, no power is required to keep them there.

E Ink's products are used in a number of devices currently on the market, including the display of a new Motorola cellphone sold mostly in the developing world, where battery power is at a premium and cellphones are more likely to be used outside in natural light – like traditional paper, e-paper can be read comfortably in sunlight. But the most well-known product incorporating E Ink technology is the Sony Reader, an e-book that retails for around \$350. About the size and shape of a small notebook, the gadget can download e-book titles from various websites (including Sony's own store) and

display them one page at a time on its screen. It can hold about 80 books.¹⁰⁰ Some reviewers have praised how closely the Reader imitates ink on paper, and, having briefly tried one at the company's offices, I can attest it is much more pleasant to use than previous e-books. But it is still a rigid box with a screen, no pages to finger, no way to scribble in the margins or hold your place while you look back at a previous chapter. "As you read along . . . it's hard to know exactly where you are in a book," wrote Charles McGrath in *The New York Times* review of the Sony Reader: "A little icon at the bottom of the screen tells you that you're on Page 312 of 716 or whatever, but that's not nearly as satisfying as being able to eyeball how many pages you have left, or even to feel your progress with your fingers. You can't skim or flip through easily, though the Reader does have a bookmark feature, nor can you search or make notes. The whole experience is a little like floating through cyberspace."¹⁰¹

E Ink says the technology is evolving quickly and will soon eliminate these problems. According to Michael McCreary, the company's vice president for research and advanced development, the displays will be made of plastic so flexible it can be rolled up and even folded. Assuming that happens, it would be feasible to create a newspaper that looks, feels and reads somewhat like a traditional hard-copy newspaper, but with content downloaded from the Internet. A fictional version of such a newspaper appeared in the 2002 science-fiction movie *Minority Report*. In one scene, a copy of *USA Today* on e-paper is shown just as the content on the page is changing. The filmmakers consulted with E Ink.¹⁰²

The fact that a true e-newspaper exists only in science fiction underlines how hypothetical this notion is. It may be many years before it can be

attempted, and even then, it's impossible to know if people will enjoy using it. Perhaps by then hard-copy newspapers will already have disappeared, and journalists and readers alike will have left behind the modes of writing and reading – the habits of thought – that even today are ineffably yet inextricably linked to paper.

If it's true that newspapers got some of their best qualities from the paper they were printed on, the good news is the medium itself is not going anywhere. Paper is all around us, quietly doing the same work it's been doing for centuries. Indeed, what's most remarkable about the quest for e-paper is the standard by which we measure its progress. Paper itself is the inescapable metaphor, the paradigm, the tantalizing goal. The new medium will be deemed a success if and when it is no longer just an imitation of paper, but the real thing – when it *becomes* paper. It's not as easy as it looks.

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Notes

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¹⁵ Scott Donaton, "Fold *The Wall Street Journal* (Well, at least think about it)," *Advertising Age*, July 24, 2006, p. 14.

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¹⁷ For an amusing take on the "absurdity" of hard-copy newspaper production and distribution, see Michael Kinsley, "Black and White and Dead All Over," *The Washington Post*, January 7, 2006, p. A-17.

¹⁸ John Morton, "Passing the Inflection Point," *Morton-Groves Newspaper Newsletter*, March 15, 2007, p. 1.

¹⁹ See for instance, Steven Rattner, "Red All Over," *The Wall Street Journal*, Monday, February 19, 2007, p. A-19.

²⁰ See especially several panels held at the Joan Shorenstein Center, October 13-14, 2006, videos archived under news at www.ksg.harvard.edu/presspol/news_events/news_archive/2006/twentieth_anniversary.htm; also David Hirschman, "Top Editors Discuss Newspapers' Future, and Web, at Columbia Panel," *Editor & Publisher*, March 22, 2007, www.editorandpublisher.com; and Emma Trotter, "Panel Discusses Future of the Newspaper," *The Stanford Daily*, May 15, 2007, www.stanforddaily.com

²¹ Daniel Okrent, "The Death of Print?" www.digitaljournalist.org/issue0002/okrent.htm; originally delivered as a speech in São Paulo, Brazil, fall 1997.

²² Price of some varieties of hand-made Japanese paper sold by the high-end paper retailer Paper Source, as noted at the company's store at 3019 M St. NW, Washington, DC, spring 2007.

²³ Eleanor Laise, "Pushing Paperless: The Pros and Cons," *The Wall Street Journal*, May 2, 2007, p. D1. For a broader view of paper's persistence presence in the business world, see Gary Haber, "Paper Still a Must-Have," *The News Journal* (Delaware), September 11, 2006, p. 1.

²⁴ Frank Romano, Professor Emeritus, School of Print Media, Rochester Institute of Technology, email interview, February 15, 2007.

²⁵ Abigail J. Sellen and Richard H. R. Harper, *The Myth of the Paperless Office* (Cambridge, Mass.: MIT Press, 2002; reprint, 2003), pp. 7-13 (page citations are to the reprint edition).

²⁶ Romano interview. As modern technology advances in Asia and other parts of the world, Romano said he expects worldwide paper consumption will eventually go into decline.

²⁷ Jack Ewing, "Where the Book Business is Humming," *Business Week*, May 14, 2007, p. 50; and Andrew Barry, "Long Live Dead Trees," *Barron's*, April 2, 2007, p. 24.

²⁸ Paul Duguid, "Material Matters: Aspects of the Past and the Futurology of the Book," in *The Future of the Book*, ed. Geoffrey Nunberg (Berkeley, California: University of California Press, 1996), pp. 63-102.

²⁹ Ibid.

³⁰ Ibid.

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³² "The Office of the Future," *Business Week*, June 30, 1975, pp. 48-84.

³³ Nicholas Negroponte, *Being Digital* (New York: Alfred A. Knopf, 1995), p. 7.

- ³⁴ David Dix, "Virtual Chiat," *Wired*, 2.07, July 1994, www.wired.com/wired/archive/2.07/chiat.html
- ³⁵ Warren Berger, "Lost in Space," *Wired*, 7.02, February 1999, www.wired.com/wired/archive/7.02/chiat_pr.html
- ³⁶ Lisa Genasci, "Have Laptop, Will Travel: The New Nomad Life of the White Collar Worker," The Associated Press, March 8, 1994.
- ³⁷ Berger.
- ³⁸ Dard Hunter, *Papermaking: The History and Technique of an Ancient Craft* (London: The Cresset Press, 1957), pp. 48-63. In 2006, archaeologists in northwestern China reported finding a piece of Chinese writing paper from the year 8 B.C., or more than 100 years before the date of Cai Lun's "discovery." Thus, the true inventor is apparently unknown.
- ³⁹ Hunter, pp. 48-63. Also Sukey Hughes, *Washi: The World of Japanese Paper* (New York: Kodansha International/USA, Ltd., 1978), pp. 39-40.
- ⁴⁰ Hunter, pp. 48-63.
- ⁴¹ Carmen Crespo and Vicente Viñas, "The Preservation and Restoration of Paper Records and Books: A RAMP Study with Guidelines," (Paris: United Nations Educational, Scientific and Cultural Organization, 1985; translated from the Spanish original), footnote, p. 3; The Missal of Silos is also cited as the oldest Western paper document in more recent sources including Norris McWhirter, *Norris McWhirter's Book of Historical Records* (New York: Sterling Publishing Company, Inc., 2000), p. 218.
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- ⁴³ Harold A. Innis, *Empire and Communications*, (Oxford University Press, 1950, ; rev. by Mary G. Innis, Toronto: University of Toronto Press, 1972), pp. 128-129 (page citations are to the revised edition).
- ⁴⁴ Hunter, pp. 60-61.
- ⁴⁵ Hunter, p. 473; also Innis, p. 129.
- ⁴⁶ Peter Stallybrass, Michael Mendle, Heather Wolfe, brochure for "Technologies in the Age of Print," exhibit at the Folger Shakespeare Library, Washington, DC, September 28, 2006 – February 17, 2007.
- ⁴⁷ Ibid.
- ⁴⁸ Ibid.
- ⁴⁹ Stallybrass, Mendle and Wolfe, texts accompanying exhibited materials, "Technologies in the Age of Print."
- ⁵⁰ Ibid.
- ⁵¹ Ibid.
- ⁵² For an excellent discussion of writing tables and their uses, both in *Hamlet* and in Shakespeare's time generally, see Peter Stallybrass, Roger Chartier, J. Franklin Mowrey and Heather Wolfe, "Hamlet's Tables and the Technologies of Writing in Renaissance England," *Shakespeare Quarterly*, 55 (4): pp. 379-419.
- ⁵³ William Shakespeare, *The Tragedy of Hamlet, Prince of Denmark* in *The Norton Shakespeare*, general ed. Stephen Greenblatt (New York: W.W. Norton & Company, 1997), Tragedies, p. 314.
- ⁵⁴ Paul Saffo, "The Electronic Piñata," www.saffo.com/essays/epinata.php, originally published c. October 1992.
- ⁵⁵ William McDonough and Michael Braungart, *Cradle to Cradle: Remaking The Way We Make Things* (New York: North Point Press, 2002), p. 5.

- ⁵⁶ Saffo, “The Electronic Piñata.”
- ⁵⁷ Sellen and Harper, pp. 51-73.
- ⁵⁸ Ibid. Since the publication of Sellen and Harper’s book, a kind of pro-clutter school of thought has emerged in magazines and newspaper articles, and most recently in Eric Abrahamson and David H. Freedman, *A Perfect Mess: The Hidden Benefits of Disorder – How Crammed Closets, Cluttered Offices, and On-the-Fly Planning Make the World a Better Place* (New York: Little, Brown & Co., 2006).
- ⁵⁹ Sellen and Harper, pp. 61-62.
- ⁶⁰ Ibid., pp. 101-103.
- ⁶¹ Ibid., p. 103.
- ⁶² Ibid., p. 92.
- ⁶³ Ibid., p. 93.
- ⁶⁴ See Section 4 for further discussion of visual interaction with displays. Developers of e-book technologies have done extensive research on the relationship between eye fatigue and various reading media. Others have identified cognitive differences between “browsing” on paper and online. For example, Monica Bulger, “Beyond Search: A Preliminary Skill Set for Online Literacy,” published online by the Transliterations Project, University of California at Santa Barbara, <http://transliterations.english.ucsb.edu>; as well as Mônica Macedo-Rouet, Jean-François Rouet, Isaac Epstein and Pierre Fayard, “Effects of Online Reading on Popular Science Comprehension,” *Science Communication*, 25 (2) (2003): pp. 99-128.
- ⁶⁵ The paucity of academic research on the cognitive aspects of pleasure reading is noted in Sellen and Harper, p. 105. One noteworthy exception is Victor Nell, *Lost in a Book: The Psychology of Reading for Pleasure* (New Haven: Yale University Press, 1988), an in-depth study of so-called “ludic” readers or people who derive particularly intense pleasure from reading.
- ⁶⁶ Interview with Peter Kreisky, January 24, 2006.
- ⁶⁷ Interview with Scott C. MacDonald, January 17, 2007.
- ⁶⁸ See for instance, Gerald Zaltman, *How Customers Think: Essential Insights Into the Mind of the Market* (Boston: Harvard Business School Press, 2003).
- ⁶⁹ Olson Zaltman Associates, “Thoughts and Feelings about Magazine and Television Advertising: A ZMET Project for Condé Nast,” August 2004.
- ⁷⁰ Condé Nast summary of “Thoughts and Feelings about Magazine and Television Advertising,” by Olson Zaltman Associates.
- ⁷¹ Gerald Zaltman, telephone interview, May 18, 2007.
- ⁷² Olson Zaltman Associates, “Thoughts and Feelings” report.
- ⁷³ Ibid.
- ⁷⁴ Ibid.
- ⁷⁵ Ibid.
- ⁷⁶ Ibid.
- ⁷⁷ Gerald Zaltman, interview, December 1, 2006.
- ⁷⁸ Scott C. McDonald, telephone interview, November 21, 2006.
- ⁷⁹ Scott Donaton, interview, January 17, 2007.
- ⁸⁰ McDonald interview, November 21, 2006.
- ⁸¹ Mihaly Csikszentmihalyi, *Flow: The Psychology of Optimal Experience* (New York: Harper & Row, 1990; reprint, Harper Perennial, 1991), pp. 1-93 (page citations are to the reprint edition).
- ⁸² Ibid., p. 49.

⁸³ Ibid., pp. 2-6.

⁸⁴ “merciful oblivion,” *ibid.*, p. 59. At one point Csikszentmihalyi mentions reading “most newspapers and magazines,” together with watching television and talking to other people, as activities that require very little concentration and implicitly do not produce the optimal state. But elsewhere in the book he discusses the enormous flow potential of both reading and socializing. Apparently, the value yielded by these experiences depends on the specific circumstances. I assume I’m not the only one who has experienced a version of flow when reading both newspapers and magazines.

⁸⁵ McDonald interview, November 21, 2006.

⁸⁶ Florida election-returns example suggested by Sidney Verba, interview, October 24, 2006.

⁸⁷ “Everything all the time” is a slogan of XM Satellite Radio.

⁸⁸ John Seely Brown and Paul Duguid, *The Social Life of Information* (Boston: Harvard Business School Press, 2000), p. 181.

⁸⁹ Brown and Duguid, p. 3.

⁹⁰ David Derbyshire, “Surfing Net is Top Pastime for Elderly,” *The Daily Telegraph*, February 2, 2007, p. 1.

⁹¹ David McRaney, “Journalists Must Adapt to Web,” *The Student Printz*, May 1, 2007, www.studentprintz.com

⁹² John Carroll, “What Will Become of Newspapers?,” speech to the American Society of Newspaper Editors, April 26, 2006, published in booklet form by the Joan Shorenstein Center on the Press, Politics and Public Policy, Kennedy School of Government, Harvard University.

⁹³ Scott Anthony, Remarks on the American Press Institute/Newspaper Next Project, Shorenstein Center, October 14, 2006.

⁹⁴ L. Gordon Crovitz, “What Is Changing – and What Isn’t – In The Wall Street Journal,” December 4, 2006, p. A-17.

⁹⁵ “Introducing a Digital Newspaper . . .,” *The New York Times*, May 15, 2007, p. ZD1.

⁹⁶ Michael McCreary, interview, November 29, 2006.

⁹⁷ *Time Digital*, December 2000, cover image and pp. 42-48.

⁹⁸ James L. McQuivey, telephone interview, April 20, 2007.

⁹⁹ Tatsuo Kobayashi, interview, January 19, 2000.

¹⁰⁰ McCreary interview.

¹⁰¹ Charles McGrath, “Can’t Judge An E-Book by Its Screen? Well, Maybe You Can,” *The New York Times*, November 24, 2006, p. B6.

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