# The Bookless Future, Part II

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Only at TNR Online
Post date: 08.08.06

A year ago last May, I published an article in TNR called "The Bookless Future," which speculated about how the humble act of reading was changing in the age of the Internet. In good TNR fashion, I tried to steer a middle course, in this case between techno-radicals eager to digitize every last book in sight, and paper-worshipping traditionalists whose fingers curl at the very thought of reading on a computer. I argued that while the future is unlikely to see paper books disappear, a movement from paper to screen is nonetheless taking place rapidly in many domains (notably, my own domain of academia), and suggested that the most important task at hand is to design tools that make the experience of paperless reading more natural and "book-like." Unfortunately, I added, the history of such tools--"electronic reading devices" such as RCA's disappointing Rocket eBook--did not yet inspire confidence.

This summer, however, the story has taken a dramatically new turn. As I write this article, I have in front of me a device displaying a page from a book. Its screen is the size of a paperback--about 4.5 by 6.5 inches. The background is not white, but light gray, making the print somewhat harder on the eyes than print in ordinary books. Otherwise, however, this "page" resembles paper far more than it does a conventional electronic screen. Like paper, it is not

illuminated by a glowing backlight, but simply reflects ordinary light sources. Out of doors, instead of being washed out and unreadable like nearly all electronic screens, it looks brilliant. The device, called the [iLiad](), manufactured by a spin-off of Philips called iRex Technologies, uses a new technology called ["electronic ink,"]() which deploys an electric field to turn surface "microcapsules" black or white. This process eliminates the need for backlighting, which not only makes reading easier on the eyes, but also dramatically reduces the screen's weight while improving its resolution. The iLiad weighs only about thirteen ounces, or less than many hardcover books, and has a screen resolution equal to that of most laptops (1024 x 768 pixels)--albeit only in black and white.

Most important, like a computer, the iLiad has the capacity to store tens of thousands of pages. The memory on my own device currently holds four student papers, several dozen articles downloaded from the Internet, fifteen plays by Shakespeare, most of the King James Bible, Tocqueville's *The Old Regime and the French Revolution*, Jules Verne's *Around the World in Eighty Days*, an eighteenth-century edition of Gray's "An Elegy Written in a Country Church Yard" (in pdf), and several other books. Going on a trip, I can take a small library with me in a package just a little heavier than an iPod.

If you have not yet heard of the iLiad, there are, unfortunately, some good reasons why. The device is effectively still in the testing stage, and iRex will not even start marketing it seriously until the company has taken care of numerous, minor software bugs and also made the hardware more reliable (my own iLiad works fine, but sites like

that cater to "early adopters" are bristling with complaints about faulty batteries, inoperative screens, and the like). And even when these problems are fixed, setting up a new iLiad will still involve a cumbersome process that only geeks can love, including establishing a network connection without the usual Windows or Mac tools. Potential purchasers not turned away by these issues, meanwhile, will almost certainly blanch at the price: $810.84--which is to say more than many full-function laptop computers. A final problem is that for anyone used to the instantaneous response time of computers, electronic ink technology is still frustratingly slow. It takes the iLiad nearly a minute to load complex texts into its memory, and up to two seconds just to turn a page.

Yet despite these limitations, at least for me, the iLiad is not just a sign of things to come, but a long-standing dream come true. I am a person who prefers to read while sunk into the depths of an easy chair or sprawled out on a couch, limbs akimbo. So when interesting written material started appearing on the Internet a decade ago, my biggest frustration with the medium came from having to sit at a desk, staring at words on a screen. I could print Web pages out, but the steadily increasing cost of printer ink cartridges made this step seem exorbitant, not to mention time-consuming. At roughly the same moment, meanwhile, in the course of my professional life as a professor, I started receiving more and more reading matter in the form of file attachments: colleagues' work, students' papers, articles to review, and so forth. Online databases of articles and books started to appear as well, and quickly became indispensable for my

research. But these sorts of long documents are even less pleasant to read on the screen, and more expensive to print out, than Web journalism. In short, my amazement at the incredible wealth of material now available at the click of a mouse was matched by my frustration at the form in which it arrived. The solution to the problem, I dreamed, was a detachable computer screen that I could hold comfortably. On the couch. Like a book.

Over the past ten years, to the alternating amusement, frustration, and occasional horror of my more sensible wife, I have experimented with any number of different, often expensive attempts to achieve this ideal electronic reading experience. I had a brief fling with Palms and a Pocket PC, only to be frustrated by their inability to display more than 100 words at a time with any degree of legibility (ditto for cell phones). I waited breathlessly for the release of Microsoft's much-ballyhooed but essentially useless "Reader" program, which promised to make on-screen reading a pleasure--all it actually did was make text fuzzier. I bought a Tablet PC, and while this computer makes it entirely possible to browse the Web on the couch, holding the screen on your lap, it is still large, heavy, physically warm, and very un-book-like--closer to the ideal, but not there yet.

I also flirted with various devices designed specifically for reading, such as the Rocket eBook. But with them, I was frustrated not only by the poor screen quality, which induced headaches, but also by the manufacturers' business strategy. RCA in particular saw its device as a delivery system for books that users would purchase, rather than as a means for reading the huge amount of material that users

already possessed in electronic form. At first, the company made loading such "non-proprietary" material onto the device almost impossible. Not surprisingly, it therefore ran into a vicious circle which quickly doomed its product: Publishers declined to make many books available in electronic form without demonstrable consumer demand, while consumers understandably balked at buying a device on which they had little to read.

By 2004, some e-book devices lacking these restrictions had come on the market (notably Bookeen's "Cybook"), but by then, the vastly preferable electronic ink technology had arrived, in a device called the Sony Librié, available only in Japan. I waited eagerly for its American release, and even considered importing a Japanese model in the meantime (domestic harmony prevailed instead). But the Librié flopped as well, probably because Sony, with the sort of obtuseness large corporations can be so uncannily good at, precisely repeated RCA's mistake of focusing on "proprietary content"--i.e. best-sellers. This fall, after many delays, Sony will finally release a new version of the Librié, called the Sony Reader, in the United States. While the company promises that this time, really, users will be able to load their own material onto the machine, it remains obsessed with selling electronic versions of *The Da Vinci Code* (a book which features prominently on the device's promotional website).

In the meantime, however, iRex has released the iLiad, which has all the advantages of electronic ink without Sony's fixation on proprietary content. iRex has concentrated on the medium rather than on the message, and, to a surprisingly large extent, it has

succeeded. Once past the complicated set-up process, and despite the bugs, the iLiad is a pleasure--and simplicity itself--to use. Plug it into a USB port on a computer, and it shows up as a disk drive. From there, copying documents to it is a simple matter of a mouse drag. The iLiad does not yet read documents written in Microsoft Word, but converting a Word document into an iLiad-readable format such as html or pdf takes just seconds, and requires no special software. To read Web pages on the iLiad you need do little more than save the page in question directly to it, which takes less time and fuss than printing the page out. Now, if an article catches my eye, I instinctively save it to the iLiad, then unplug and sprawl on the couch to read. Geek Nirvana.

But can iRex find enough buyers to generate decent sales for the device? That is to say, serious readers who are not put off by things like network connections, who don't particularly care about bestsellers, and who can afford to shell out the price of a laptop for a machine that does little more than display text? Despite all the attractions of the iLiad, I am not optimistic. Neither, for that matter, is iRex itself, which, for the moment is marketing the device principally to businesses, not individual consumers (it comes with a stylus for note-taking, which may make it attractive for some business uses). I would not count on a new Gutenberg revolution starting here, although I wouldn't entirely rule out the possibility.

But as I pointed out in my article last year, the rise of the electronic text has all along differed hugely from the original Gutenberg revolution, despite the frequent invocation of Gutenberg's name by pundits and entrepreneurs. While Gutenberg himself deliberately

designed his printed book to look as much as possible like the manuscript books of his day, early computer designers had no concern at all with making their machines book-like, for the simple reason that before the 1980's hardly anyone thought computers would ever be used to display books. The fact that people started to use them for this purpose is something of a historical accident, an unintended consequence of word processing, the Internet, and the economics of academic publishing (which, on paper, has become ruinously expensive). It has taken many years for computers to move in a truly book-like direction. The iRex iLiad, modest and flawed though it is, probably represents the most significant step to date.

In some respects, the iLiad is actually a little *too* book-like. Unlike a computer, it cannot yet be used to search a text for particular terms, or to copy and paste particular passages (these functions will probably show up in later software upgrades). But limitations of this sort are not necessarily a bad thing. As I argued last year, computers are often the enemy of serious reading--of reading every page, of following an author's logic rather than trying to impose one's own, of treating a book as a book, not a collection of quotations to be cut and pasted at will. Ironically, as reading devices such as the iLiad improve, they will probably end up making their users into worse readers, not better. For the moment, reading on the iLiad is shockingly unlike reading on a computer. It feels much more like, well, reading a book.

Of course, devices like the iLiad may not improve at all, unless a market develops for them--which depends on the manufacturers bringing down the price, improving the ease of set-up, and speeding

up the slow page turns that still bedevil electronic ink technology. If iRex or its competitors (such as the Chinese company Jinke, which will soon release [yet another e-ink book reader](#)) cannot manage these tasks, then their machines are doomed to remain niche products at best, short-lived curiosities at worst. But I almost don't care. At least for a few years, assuming my iLiad doesn't break down, I have my first true, comfortable, pleasant, long-dreamed-of reading device. It's not perfect, and it's not cheap, but, unlike every other electronic reading method I've tried, it's simple, it works (give or take a few hitches), and it doesn't give me a headache. If you need me, I'll be on the couch. Reading.

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