

# Twilight of the Books

## What will life be like if people stop reading?

by Caleb Crain

**"Reading furnishes the mind only with materials of knowledge; it is thinking that makes what we read ours."**

John Locke

(English Philosopher who made great contributions in studies of politics, government and psychology. 1632-1704)

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Statistics: In 1937, twenty-nine per cent of American adults told the pollster George Gallup that they were reading a book. In 1955, only seventeen per cent said they were. Pollsters began asking the question with more latitude. In 1978, a survey found that fifty-five per cent of respondents had read a book in the previous six months. The question was even looser in 1998 and 2002, when the General Social Survey found that roughly seventy per cent of Americans had read a novel, a short story, a poem, or a play in the preceding twelve months. And, this August, seventy-three per cent of respondents to another poll said that they had read a book of some kind, not excluding those read for work or school, in the past year. If you didn't read the fine print, you might think that reading was on the rise.

You wouldn't think so, however, if you consulted the Census Bureau and the National Endowment for the Arts, who, since 1982, have asked thousands of Americans questions about reading that are not only detailed but consistent. The results, first reported by the N.E.A. in 2004, are dispiriting. In 1982, 56.9 per cent of Americans had read a work of creative literature in the previous twelve months. The proportion fell to fifty-four per cent in 1992, and to 46.7 per cent in 2002. Last month, the N.E.A. released a follow-up report, "To Read or Not to Read," which showed correlations between the decline of reading and social phenomena as diverse as income disparity, exercise, and voting. In his introduction, the N.E.A. chairman, Dana Gioia, wrote, "Poor reading skills correlate heavily with lack of employment, lower wages, and fewer opportunities for advancement."

This decline is not news to those who depend on print for a living. In 1970, according to Editor & Publisher International Year Book, there were 62.1 million weekday newspapers in circulation-about 0.3 papers per person. Since 1990, circulation has declined steadily, and in 2006 there were just 52.3 million weekday papers-about 0.17 per person. In January 1994, forty-nine per cent of respondents told the Pew Research Center for the People and the Press that they had read a newspaper the day before. In 2006, only forty-three per cent said so, including those who read online. Book sales, meanwhile, have stagnated. The Book Industry Study Group estimates that sales fell from 8.27 books per person in 2001 to 7.93 in 2006. According to the Department of Labor, American households spent an average of a hundred and sixty-three dollars on reading in 1995 and a hundred and twenty-six dollars in 2005. In "To Read or Not to Read," the N.E.A. reports that American households' spending on books, adjusted for inflation, is "near its twenty-year low," even as the average price of a new book has increased.

More alarming are indications that Americans are losing not just the will to read but even the ability. According to the Department of Education, between 1992 and 2003 the average adult's skill in reading prose slipped one point on a five-hundred-point scale, and the proportion who were proficient-capable of such tasks as "comparing viewpoints in two editorials"-declined from fifteen per cent to thirteen. The Department of Education found that reading skills have improved moderately among fourth and eighth graders in the past decade and a half, with the largest jump occurring just before the No Child Left Behind Act took effect, but twelfth graders seem to be taking after their elders. Their reading scores fell an average of six points between 1992 and 2005, and the share of proficient twelfth-grade readers dropped from forty per cent to thirty-five per cent. The steepest declines were in "reading for literary experience"-the kind that involves "exploring themes, events, characters, settings, and the language of literary works," in the words of the department's test-makers. In 1992, fifty-four per cent of twelfth graders told the Department of Education that they talked about their reading with friends at least once a week. By 2005, only thirty-seven per cent said they did.

The erosion isn't unique to America. Some of the best data come from the Netherlands, where in 1955 researchers began to ask people to keep diaries of how they spent every fifteen minutes of their leisure time. Time-budget diaries yield richer data than surveys, and people are thought to be less likely to lie about their accomplishments if they have to do it four times an hour. Between 1955 and 1975, the decades when television was being introduced into the Netherlands, reading on weekday evenings and weekends fell from five hours a week to 3.6, while television watching rose from about ten minutes a week to more than ten hours. During the next two decades, reading continued to fall and television watching to rise, though more slowly. By 1995, reading, which had occupied twenty-one per cent of people's spare time in 1955, accounted for just nine per cent.

The most striking results were generational. In general, older Dutch people read more. It would be natural to infer from this that each generation reads more as it ages, and, indeed, the researchers found something like this to be the case for earlier generations. But, with later ones, the age-related growth in reading dwindled. The turning point seems to have come with the generation born in the nineteen-forties. By 1995, a Dutch college graduate born after 1969 was likely to spend fewer hours reading each week than a little-educated person born before 1950. As far as reading habits were concerned, academic credentials mattered less than whether a person had been raised in the era of television. The N.E.A., in its twenty years of data, has found a similar pattern. Between 1982 and 2002, the percentage of Americans who read literature declined not only in every age group but in every generation-even in those moving from youth into middle age, which is often considered the most fertile time of life for reading. We are reading less as we age, and we are reading less than people who were our age ten or twenty years ago.

There's no reason to think that reading and writing are about to become extinct, but some sociologists speculate that reading books for pleasure will one day be the province of a special "reading class," much as it was before the arrival of mass literacy, in the second half of the nineteenth century. They warn that it probably won't regain the prestige of exclusivity; it may just become "an increasingly arcane hobby." Such a shift would change the texture of society. If one person decides to watch "The Sopranos" rather than to read Leonardo Sciascia's novella "To Each His Own," the culture goes on largely as before-both viewer and reader are entertaining themselves while learning something about the Mafia in the bargain. But if, over time, many people choose television over books, then a nation's conversation with itself is likely to change. A reader learns about the world and imagines it

differently from the way a viewer does; according to some experimental psychologists, a reader and a viewer even think differently. If the eclipse of reading continues, the alteration is likely to matter in ways that aren't foreseeable.

Taking the long view, it's not the neglect of reading that has to be explained but the fact that we read at all. "The act of reading is not natural," Maryanne Wolf writes in "Proust and the Squid" (Harper; \$25.95), an account of the history and biology of reading. Humans started reading far too recently for any of our genes to code for it specifically. We can do it only because the brain's plasticity enables the repurposing of circuitry that originally evolved for other tasks-distinguishing at a glance a garter snake from a haricot vert, say.

The squid of Wolf's title represents the neurobiological approach to the study of reading. Bigger cells are easier for scientists to experiment on, and some species of squid have optic-nerve cells a hundred times as thick as mammal neurons, and up to four inches long, making them a favorite with biologists. (Two decades ago, I had a summer job washing glassware in Cape Cod's Marine Biological Laboratory. Whenever researchers extracted an optic nerve, they threw the rest of the squid into a freezer, and about once a month we took a cooler-full to the beach for grilling.) To symbolize the humanistic approach to reading, Wolf has chosen Proust, who described reading as "that fruitful miracle of a communication in the midst of solitude." Perhaps inspired by Proust's example, Wolf, a dyslexia researcher at Tufts, reminisces about the nuns who taught her to read in a two-room brick schoolhouse in Illinois. But she's more of a squid person than a Proust person, and seems most at home when dissecting Proust's fruitful miracle into such brain parts as the occipital "visual association area" and "area 37's fusiform gyrus." Given the panic that takes hold of humanists when the decline of reading is discussed, her cold-blooded perspective is opportune.

Wolf recounts the early history of reading, speculating about developments in brain wiring as she goes. For example, from the eighth to the fifth millennia B.C.E., clay tokens were used in Mesopotamia for tallying livestock and other goods. Wolf suggests that, once the simple markings on the tokens were understood not merely as squiggles but as representations of, say, ten sheep, they would have put more of the brain to work. She draws on recent research with functional magnetic resonance imaging (fMRI), a technique that maps blood flow in the brain during a given task, to show that meaningful squiggles activate not only the occipital regions responsible for vision but also temporal and parietal regions associated with language and computation. If a particular squiggle was repeated on a number of tokens, a group of nerves might start to specialize in recognizing it, and other nerves to specialize in connecting to language centers that handled its meaning.

In the fourth millennium B.C.E., the Sumerians developed cuneiform, and the Egyptians hieroglyphs. Both scripts began with pictures of things, such as a beetle or a hand, and then some of these symbols developed more abstract meanings, representing ideas in some cases and sounds in others. Readers had to recognize hundreds of symbols, some of which could stand for either a word or a sound, an ambiguity that probably slowed down decoding. Under this heavy cognitive burden, Wolf imagines, the Sumerian reader's brain would have behaved the way modern brains do when reading Chinese, which also mixes phonetic and ideographic elements and seems to stimulate brain activity in a pattern distinct from that of people reading the Roman alphabet. Frontal regions associated with muscle memory would probably also have gone to work, because the Sumerians learned their characters by writing them over and over, as the Chinese do today.

Complex scripts like Sumerian and Egyptian were written only by scribal élites. A major

breakthrough occurred around 750 B.C.E., when the Greeks, borrowing characters from a Semitic language, perhaps Phoenician, developed a writing system that had just twenty-four letters. There had been scripts with a limited number of characters before, as there had been consonants and even occasionally vowels, but the Greek alphabet was the first whose letters recorded every significant sound element in a spoken language in a one-to-one correspondence, give or take a few diphthongs. In ancient Greek, if you knew how to pronounce a word, you knew how to spell it, and you could sound out almost any word you saw, even if you'd never heard it before. Children learned to read and write Greek in about three years, somewhat faster than modern children learn English, whose alphabet is more ambiguous. The ease democratized literacy; the ability to read and write spread to citizens who didn't specialize in it. The classicist Eric A. Havelock believed that the alphabet changed "the character of the Greek consciousness."

Wolf doesn't quite second that claim. She points out that it is possible to read efficiently a script that combines ideograms and phonetic elements, something that many Chinese do daily. The alphabet, she suggests, entailed not a qualitative difference but an accumulation of small quantitative ones, by helping more readers reach efficiency sooner. "The efficient reading brain," she writes, "quite literally has more time to think." Whether that development sparked Greece's flowering she leaves to classicists to debate, but she agrees with Havelock that writing was probably a contributive factor, because it freed the Greeks from the necessity of keeping their whole culture, including the Iliad and the Odyssey, memorized.

The scholar Walter J. Ong once speculated that television and similar media are taking us into an era of "secondary orality," akin to the primary orality that existed before the emergence of text. If so, it is worth trying to understand how different primary orality must have been from our own mind-set. Havelock theorized that, in ancient Greece, the effort required to preserve knowledge colored everything. In Plato's day, the word *mimesis* referred to an actor's performance of his role, an audience's identification with a performance, a pupil's recitation of his lesson, and an apprentice's emulation of his master. Plato, who was literate, worried about the kind of trance or emotional enthrallment that came over people in all these situations, and Havelock inferred from this that the idea of distinguishing the knower from the known was then still a novelty. In a society that had only recently learned to take notes, learning something still meant abandoning yourself to it. "Enormous powers of poetic memorization could be purchased only at the cost of total loss of objectivity," he wrote.

It's difficult to prove that oral and literate people think differently; orality, Havelock observed, doesn't "fossilize" except through its nemesis, writing. But some supporting evidence came to hand in 1974, when Aleksandr R. Luria, a Soviet psychologist, published a study based on interviews conducted in the nineteen-thirties with illiterate and newly literate peasants in Uzbekistan and Kyrgyzstan. Luria found that illiterates had a "graphic-functional" way of thinking that seemed to vanish as they were schooled. In naming colors, for example, literate people said "dark blue" or "light yellow," but illiterates used metaphorical names like "liver," "peach," "decayed teeth," and "cotton in bloom." Literates saw optical illusions; illiterates sometimes didn't. Experimenters showed peasants drawings of a hammer, a saw, an axe, and a log and then asked them to choose the three items that were similar. Illiterates resisted, saying that all the items were useful. If pressed, they considered throwing out the hammer; the situation of chopping wood seemed more cogent to them than any conceptual category. One peasant, informed that someone had grouped the three tools together, discarding the log, replied, "Whoever told you that must have been

crazy," and another suggested, "Probably he's got a lot of firewood." One frustrated experimenter showed a picture of three adults and a child and declared, "Now, clearly the child doesn't belong in this group," only to have a peasant answer:

Oh, but the boy must stay with the others! All three of them are working, you see, and if they have to keep running out to fetch things, they'll never get the job done, but the boy can do the running for them.

Illiterates also resisted giving definitions of words and refused to make logical inferences about hypothetical situations. Asked by Luria's staff about polar bears, a peasant grew testy: "What the cock knows how to do, he does. What I know, I say, and nothing beyond that!" The illiterates did not talk about themselves except in terms of their tangible possessions. "What can I say about my own heart?" one asked.

In the nineteen-seventies, the psychologists Sylvia Scribner and Michael Cole tried to replicate Luria's findings among the Vai, a rural people in Liberia. Since some Vai were illiterate, some were schooled in English, and others were literate in the Vai's own script, the researchers hoped to be able to distinguish cognitive changes caused by schooling from those caused specifically by literacy. They found that English schooling and English literacy improved the ability to talk about language and solve logic puzzles, as literacy had done with Luria's peasants. But literacy in Vai script improved performance on only a few language-related tasks. Scribner and Cole's modest conclusion-"Literacy makes some difference to some skills in some contexts"-convinced some people that the literate mind was not so different from the oral one after all. But others have objected that it was misguided to separate literacy from schooling, suggesting that cognitive changes came with the culture of literacy rather than with the mere fact of it. Also, the Vai script, a syllabary with more than two hundred characters, offered nothing like the cognitive efficiency that Havelock ascribed to Greek. Reading Vai, Scribner and Cole admitted, was "a complex problem-solving process," usually performed slowly.

Soon after this study, Ong synthesized existing research into a vivid picture of the oral mind-set. Whereas literates can rotate concepts in their minds abstractly, orals embed their thoughts in stories. According to Ong, the best way to preserve ideas in the absence of writing is to "think memorable thoughts," whose zing insures their transmission. In an oral culture, cliché and stereotype are valued, as accumulations of wisdom, and analysis is frowned upon, for putting those accumulations at risk. There's no such concept as plagiarism, and redundancy is an asset that helps an audience follow a complex argument. Opponents in struggle are more memorable than calm and abstract investigations, so bards revel in name-calling and in "enthusiastic description of physical violence." Since there's no way to erase a mistake invisibly, as one may in writing, speakers tend not to correct themselves at all. Words have their present meanings but no older ones, and if the past seems to tell a story with values different from current ones, it is either forgotten or silently adjusted. As the scholars Jack Goody and Ian Watt observed, it is only in a literate culture that the past's inconsistencies have to be accounted for, a process that encourages skepticism and forces history to diverge from myth.

Upon reaching classical Greece, Wolf abandons history, because the Greeks' alphabet-

reading brains probably resembled ours, which can be readily put into scanners. Drawing on recent imaging studies, she explains in detail how a modern child's brain wires itself for literacy. The ground is laid in preschool, when parents read to a child, talk with her, and encourage awareness of sound elements like rhyme and alliteration, perhaps with "Mother Goose" poems. Scans show that when a child first starts to read she has to use more of her brain than adults do. Broad regions light up in both hemispheres. As a child's neurons specialize in recognizing letters and become more efficient, the regions activated become smaller.

At some point, as a child progresses from decoding to fluent reading, the route of signals through her brain shifts. Instead of passing along a "dorsal route" through occipital, temporal, and parietal regions in both hemispheres, reading starts to move along a faster and more efficient "ventral route," which is confined to the left hemisphere. With the gain in time and the freed-up brainpower, Wolf suggests, a fluent reader is able to integrate more of her own thoughts and feelings into her experience. "The secret at the heart of reading," Wolf writes, is "the time it frees for the brain to have thoughts deeper than those that came before." Imaging studies suggest that in many cases of dyslexia the right hemisphere never disengages, and reading remains effortful.

In a recent book claiming that television and video games were "making our minds sharper," the journalist Steven Johnson argued that since we value reading for "exercising the mind," we should value electronic media for offering a superior "cognitive workout." But, if Wolf's evidence is right, Johnson's metaphor of exercise is misguided. When reading goes well, Wolf suggests, it feels effortless, like drifting down a river rather than rowing up it. It makes you smarter because it leaves more of your brain alone. Ruskin once compared reading to a conversation with the wise and noble, and Proust corrected him. It's much better than that, Proust wrote. To read is "to receive a communication with another way of thinking, all the while remaining alone, that is, while continuing to enjoy the intellectual power that one has in solitude and that conversation dissipates immediately."

Wolf has little to say about the general decline of reading, and she doesn't much speculate about the function of the brain under the influence of television and newer media. But there is research suggesting that secondary orality and literacy don't mix. In a study published this year, experimenters varied the way that people took in a PowerPoint presentation about the country of Mali. Those who were allowed to read silently were more likely to agree with the statement "The presentation was interesting," and those who read along with an audiovisual commentary were more likely to agree with the statement "I did not learn anything from this presentation." The silent readers remembered more, too, a finding in line with a series of British studies in which people who read transcripts of television newscasts, political programs, advertisements, and science shows recalled more information than those who had watched the shows themselves.

The antagonism between words and moving images seems to start early. In August, scientists at the University of Washington revealed that babies aged between eight and sixteen months know on average six to eight fewer words for every hour of baby DVDs and videos they watch daily. A 2005 study in Northern California found that a television in the bedroom lowered the standardized-test scores of third graders. And the conflict continues throughout a child's development. In 2001, after analyzing data on more than a million students around the world, the researcher Micha Razel found "little room for doubt" that television worsened performance in reading, science, and math. The relationship wasn't a straight line but "an inverted check mark": a small amount of television seemed to benefit children; more hurt. For nine-year-olds, the optimum was two hours a day; for seventeen-

year-olds, half an hour. Razel guessed that the younger children were watching educational shows, and, indeed, researchers have shown that a five-year-old boy who watches "Sesame Street" is likely to have higher grades even in high school. Razel noted, however, that fifty-five per cent of students were exceeding their optimal viewing time by three hours a day, thereby lowering their academic achievement by roughly one grade level.

The Internet, happily, does not so far seem to be antagonistic to literacy. Researchers recently gave Michigan children and teen-agers home computers in exchange for permission to monitor their Internet use. The study found that grades and reading scores rose with the amount of time spent online. Even visits to pornography Web sites improved academic performance. Of course, such synergies may disappear if the Internet continues its YouTube-fuelled evolution away from print and toward television.

No effort of will is likely to make reading popular again. Children may be browbeaten, but adults resist interference with their pleasures. It may simply be the case that many Americans prefer to learn about the world and to entertain themselves with television and other streaming media, rather than with the printed word, and that it is taking a few generations for them to shed old habits like newspapers and novels. The alternative is that we are nearing the end of a pendulum swing, and that reading will return, driven back by forces as complicated as those now driving it away.

But if the change is permanent, and especially if the slide continues, the world will feel different, even to those who still read. Because the change has been happening slowly for decades, everyone has a sense of what is at stake, though it is rarely put into words. There is something to gain, of course, or no one would ever put down a book and pick up a remote. Streaming media give actual pictures and sounds instead of mere descriptions of them. "Television completes the cycle of the human sensorium," Marshall McLuhan proclaimed in 1967. Moving and talking images are much richer in information about a performer's appearance, manner, and tone of voice, and they give us the impression that we know more about her health and mood, too. The viewer may not catch all the details of a candidate's health-care plan, but he has a much more definite sense of her as a personality, and his response to her is therefore likely to be more full of emotion. There is nothing like this connection in print. A feeling for a writer never touches the fact of the writer herself, unless reader and writer happen to meet. In fact, from Shakespeare to Pynchon, the personalities of many writers have been mysterious.

Emotional responsiveness to streaming media harks back to the world of primary orality, and, as in Plato's day, the solidarity amounts almost to a mutual possession. "Electronic technology fosters and encourages unification and involvement," in McLuhan's words. The viewer feels at home with his show, or else he changes the channel. The closeness makes it hard to negotiate differences of opinion. It can be amusing to read a magazine whose principles you despise, but it is almost unbearable to watch such a television show. And so, in a culture of secondary orality, we may be less likely to spend time with ideas we disagree with.

Self-doubt, therefore, becomes less likely. In fact, doubt of any kind is rarer. It is easy to notice inconsistencies in two written accounts placed side by side. With text, it is even easy to keep track of differing levels of authority behind different pieces of information. The trust that a reader grants to the New York Times, for example, may vary sentence by sentence. A comparison of two video reports, on the other hand, is cumbersome. Forced to choose between conflicting stories on television, the viewer falls back on hunches, or on what he believed before he started watching. Like the peasants studied by Luria, he thinks

in terms of situations and story lines rather than abstractions.

And he may have even more trouble than Luria's peasants in seeing himself as others do. After all, there is no one looking back at the television viewer. He is alone, though he, and his brain, may be too distracted to notice it. The reader is also alone, but the N.E.A. reports that readers are more likely than non-readers to play sports, exercise, visit art museums, attend theatre, paint, go to music events, take photographs, and volunteer. Proficient readers are also more likely to vote. Perhaps readers venture so readily outside because what they experience in solitude gives them confidence. Perhaps reading is a prototype of independence. No matter how much one worships an author, Proust wrote, "all he can do is give us desires." Reading somehow gives us the boldness to act on them. Such a habit might be quite dangerous for a democracy to lose. ♦