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Book Review

Nicholas Carr, *The Glass Cage: Automation and Us*, New York: W.W. Norton & Company, 2014, pp. 276, $26.95

Reviewed by Rodger D. Citron

In 2008, Nicholas Carr earned his fifteen minutes of journalistic fame with a widely read essay, "Is Google Making Us Stupid?" in *The Atlantic* magazine. Carr argued that as we regularly use the Internet—and who among us does not?—our capacity for concentration is weakened. Carr based his argument principally upon neuroscience, supported by historical analysis and personal anecdotes. He contended that "the media or other technologies we use in learning and practicing the craft of reading play an important part in shaping the neural circuits inside our brains" and therefore that "the circuits woven by our use of the Net will be different from those woven by our reading of books and other printed works."[1] Carr's approach was balanced; he noted the efficiencies to be gained by reading online, especially with respect to doing research, and he acknowledged that long-term studies that could confirm his argument did not yet exist.[2]

Carr's article touched a vital nerve in the culture about the ubiquity of the Internet and how it may affect how we think, generating substantial discussion and debate.[3] Subsequently he developed the article into a book, *The Shallows: What the Internet is Doing to Our Brains*, that was a finalist for the 2011 Pulitzer Prize in nonfiction.[4] Now Carr has returned to the subject of technology, this time with a series of essays that examine the costs and benefits of automation in the workplace as well as at home. Once again, Carr plays the role of balanced skeptic, focusing on the costs of ever-increasing technological capacity—one that has entailed "the shift from mechanical to digital systems, the proliferation

1.   *See* Nicholas Carr, *Is Google Making Us Stupid?*, The Atlantic (Jul. 1, 2008, 12:00 PM), http://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/306868/2/.

2.   *Id.*

3.   *See, e.g.*, Evan R. Goldstein, *Your Brain on Google*, Chron. Higher Educ. (Jul. 11, 2008), http://chronicle.com/article/Your-Brain-on-Google/25572.

4.   Nicholas G. Carr, The Shallows: What the Internet is Doing to Our Brains (2010).

of software and screens, [and] the automation of mental as well as manual work." (62).

The glass cage in Carr's title refers to warnings about what the "glass cockpit" may be for airline pilots. According to the National Transportation Safety Board, a glass cockpit is one where "conventional analog flight instruments" have been replaced with "digital-based electronic displays" that "integrate aircraft control, autopilot, communication, navigation, and aircraft monitoring functions."[5]

Carr briefly yet incisively sketches the history of aviation, detailing the way in which the pilot—who initially was in control of and had a tactile relationship with the plane he or she flew—eventually became a computer operator who "holds the controls for a grand total of three minutes" while spending "a whole lot of time . . . checking screens and punching in data." (53). As Carr notes, this shift enabled and was prompted by demands for and concerns about safety and efficiency. And, to be sure, aviation is certainly greatly more efficient and safer now than it was a century ago. Nonetheless, as Carr shows, automation has led to "an erosion of skills, a dulling of perceptions, and a slowing of reactions" in pilots. This decline in pilots' skills may be most evident in times of crisis on a flight—that is, on those rare occasions when the flight encounters an unusual situation that requires the pilots to override or replace the computer systems flying the plane. It was this sort of pilot error that caused the fatal crash of a Continental Connection commuter flight in Buffalo that killed 50 people, including everyone on board the flight and one person on the ground, and that causes concern within the industry about the extent of computer-controlled flights (43-45).

Carr is a graceful writer and creative thinker. In showing how automation technology is infiltrating our lives, he raises a number of provocative questions that relate to the existing law school curriculum. Google has developed a self-driving car. In describing this development, Carr assumes the role of torts professor and asks where "will culpability and liability reside should a computer-driven automobile cause an accident that kills or injures someone?" It could be the owner of the car, the manufacturer who "installed the self-driving system[,] . . . the programmers who wrote the software," or some combination of the three. "Until such thorny questions get sorted out," Carr notes, "fully automated cars are unlikely to grace dealer showrooms." (7).

Carr raises similarly difficult questions in his discussion of the military's increasing reliance on technology in combat. Carr notes the controversy over the use of drone strikes but cautions that even more difficult decisions are nigh. With a drone strike, a person—albeit a soldier seated at a computer observing a live video feed—pulls the trigger. "The big change will come when a computer starts pulling the trigger," Carr writes, explaining that "[f]ully automated, computer-controlled killing machines . . . are technologically feasible today,

5.   *See Introduction of Glass Cockpit Avionics into Light Aircraft*, NAT'L TRANSP. SAFETY BOARD, http://www.ntsb.gov/safety/safety-studies/Pages/SS1001.aspx (last visited Feb. 19, 2015).

and have been for quite some time." (188). The laws of war will have to be revised once such machines are deployed, and certainly that discussion will be even more contentious than our current debate over drone strikes.

Although Carr examines how automation has transformed professions such as aviation and the military, he touches only fleetingly on how this transformation is reshaping the legal profession. He specifically notes that the discovery process has become automated and that "[d]ocument-preparation software has also advanced." Today, Carr writes, "[b]y filling out a simple checklist, a lawyer can assemble a complex contract in an hour or two—a job that once took days." (116). In addition, Carr notes that legal software firms, such as Lex Machina, are in the process of developing software that is able to analyze "thousands of past cases" in order to "recommend trial strategies," thereby making "the kinds of judgments that up to now required the experience and insight of a senior litigator." (116).

Perhaps Carr will take a closer look at the legal profession in his next book on technology and society. If he does, there are at least three questions for him to address. First, to what extent, if any, has increasing automation diminished lawyers' skills? For example, legal research algorithms are now so sophisticated that supporting authority may be easily found with a pinpoint query. Does this make legal research so easy that today's law students do not develop—or, just as importantly, do not need to develop—the research techniques required of earlier generations of students, along with the subject matter necessarily associated with such techniques?

Second, how can and should law schools integrate technology into the current curriculum? This question encompasses more than courses in certain substantive areas of the law. It also requires consideration of more practice-oriented subjects, such as law practice management.

Third, and most important, how much will increasingly sophisticated technologies disrupt the economics of traditional law practice altogether and lead to new forms of delivery of legal services? The entities—law firms, law schools, and other legal organizations—that address this question most successfully will not only survive but also likely will prosper in our brave new world.