Naomi Baron WORDS ONSCREEN The fate of reading in a digital world 320pp. Oxford University Press. £16.99 (US \$24.95). 978 0 19 931576 5

> Reinier Gerritsen THE LAST BOOK Introduction by Boris Kachka 320pp. Aperture. £40 (US \$65). 978 1 59711 270 3

Last year, faced with complaints of headaches and eyestrain, Google issued a disclaimer that its wearable Glass was not "designed for . . . reading *War and Peace*". "Things like that are better done on bigger screens", the spokesman added, echoing Annie Proulx's two-decadeold claim that "nobody is going to sit down and read a novel on a twitchy little screen. Ever".

Proulx's emphasis fell on "twitchy" but we might stress "little", now that fiction has migrated not just to dedicated e-readers such as Amazon's Kindle, but to laptops, tablets and mobile phones. Not content to compare print with digital media, Naomi S. Baron, in her lively study of digital reading, drills down to differentiate among those devices. E-books are likeliest to be read on computers in France, on e-readers in Britain, on tablets in America and on phones in South Korea. Genre varies by country as well. Proulx's assumption that the novel resists screens clashes with Baron's finding that fiction dominates e-book downloads in the United States and much of Europe, while in India, Brazil and South Korea, professional and vocational e-books corner the

Willingness to venture outside North America sets Words Onscreen apart from a throng of precursors: Alan Jacobs's The Pleasures of Reading in an Age of Distraction (2011), Andrew Piper's Book Was There: Reading in Electronic Times (2012), David Mikics's Slow Reading in a Hurried Age (2013) and the book that saw all this coming, Sven Birkerts's The Gutenberg Elegies: The fate of reading in an electronic age (1995). Like those near-namesakes, Words Onscreen asks whether printed books can compete not just with e-books but also with email, social media and gaming. The tools that shape Baron's answer, though, are different. While her precursors have tended to favour lyrical musings, Baron – a university administrator and linguistics professor – offers data, in spades. She draws on surveys of students in nine countries about their experiences of reading on paper and on screen, as well as on her own studies of college students in the US, Japan and Germany. She goes on to report on experiments that compare the physiological effects of reading on screen with those of reading on the page.

One surprise that emerges from the juxtaposition of those two sources is that behavioural data rarely confirm readers' perceptions of the differences between pages and screens. Asked which medium they prefer, students answering surveys sound uncannily like middle-aged professors crafting eulogies for print. (The exception, Baron notes wryly, is one student who complains, under the heading "Liked least about reading in hardcopy": "It takes me longer because I read more carefully".) Like their elders, the teenagers polled prefer to read on paper and believe that they understand and remember more of a printed page. Yet when

they are tested for comprehension and retention, their scores are identical in both media, as are physiological measurements of their eye movements. And though subjects report more eye strain when looking at screens, they blink with exactly the same frequency as they do when reading books. A cynic might infer that self-reporting can't be trusted, but Baron hazards a more generous explanation. Those experimental subjects were working on a schedule; when researchers lifted the time limits, participants in the study consistently spent longer on print than they did on screens - and their comprehension varied accordingly. In everyday life. Baron plausibly speculates, we are right to predict that we'll skim more hastily over electronic text. (She might have added that readers who don't trust their own ability to resist the siren call of videos and emails on a multipurpose tablet may use print to bind their future selves – like Ulysses at the mast – to single-minded attention.)

Words have inhabited screens for generations, but Words Onscreen focuses on the more recent drift of book-length texts into the digital realm. The year 2009 was the first in which Amazon sold more e-books than hardbacks in the US; two years later, Kindle sales outnumbered paperbacks as well. Baron doesn't, however, blame e-books alone for the decline in print sales. In Europe, too, the sale of print books is dropping, but e-book use, which lags on the Continent behind Britain and the US, can hardly be the culprit. In one study of tablet use cited by Baron, books rate below email, news, games and social networking sites in popularity. All these phenomena are likelier to pose a threat to print-reading than e-books.

For better and for worse, *Words Onscreen* is a timely book. In the course of her research, Baron comes across an anthology of Latin American fiction, *El libro que no puede esperar*, whose ink fades two months after the shrink wrap is torn open. Newsfeeds and instant messages fight for our attention with a factious urgency; books, in contrast, tend to be bought with the best of intentions only to be shelved, bookmarked in perpetuity a third of the way through. *Words Onscreen* might also be termed "the book that can't wait": the speed with which its subject evolves gives any book like this a shelf life even shorter than the device onto which readers download it.

When Baron traces the changes described in Words Onscreen to the actions of "computer manufacturers, broadband carriers, and the mobile phone industry", she omits one important player: lawyers. "Words onscreen" don't have to mean words in copyright purveyed by a for-profit corporation. Non-profit book digitization projects undertaken by the Internet Archive and HathiTrust avoid the licensing restrictions imposed by Amazon, but neither appears in Baron's pages. When she complains that e-books can't be lent or even inalienably owned, she blames a technology for what's only a business model: licensing restrictions don't inhere in screens, any more than copyright law inheres in printed paper. Nor does Baron take into account the difference between open file formats as EPUB (which allow books to be read on any device) and the proprietary format with which Amazon locks down its wares.

More fundamentally, Baron focuses on display to the exclusion of storage. Her taxonomy would group a printout of a PDF with a printed book, not with that same PDF read on an iPad. Unless you're investigating eye strain, surely the latter would make more sense: what's changing our reading is not the shift from

matte to shiny surfaces, but from libraries through which an optimist could hope to read his way, to data on too vast a scale to allow any operation except search. As a result, text increasingly addresses machines, not humans. To ask whether it's more efficient to cram for the exam on your laptop or to print out your lectures notes is to rearrange deckchairs on the *Titanic*. The deeper question is whether text is designed to be read by you or by the bots, web crawlers and algorithms that, having thrown so many human booksellers out of work, may now do the same to their customers.

If that thought depresses you, take refuge in the glossy pages of *The Last Book*. The photographer Reinier Gerritsen's portraits of print on the New York subway shows riders reading Paul Auster, Jane Austen, Alain Badiou, David Baldacci and so on through the alphabet. The books are identified, the human figures anonymous: some camera angles cover their eyes with the metal strip of the subway window, as if to respect the privacy of their reading. Where the experimental subjects described by Baron undergo eye tracking and MRIs, the subjects of Gerritsen's photographs remain defiantly unknowable, their faces hidden in the fold of a book. A young man squints uneasily at Strunk and White's The Elements of Style. One woman looks up from The White Album; next to her, a fellow traveller with shuttered eyes, muffled in a white wool scarf and cocooned by white earbuds, clutches a book as if it were a steaming cup of coffee. Forty years ago, Georges Perec declared that "the true library of the people is the Metro". So far at least, the absence of mobile phone reception makes New York's subway tunnels a safe fallout shelter.