

**Editor's note:** This section contains reviews of books, whether brand new or classic, that we hope will be of interest to our readers.

Book Review

## Big Brother is Crunching You

### Big Data: A Revolution That Will Transform How We Live, Work and Think

Viktor Mayer-Schönberger and Kenneth Cukier

**Publisher:** John Murray, London, 2013

**Language:** English

**ISBN:** 978-1-84854-790-2

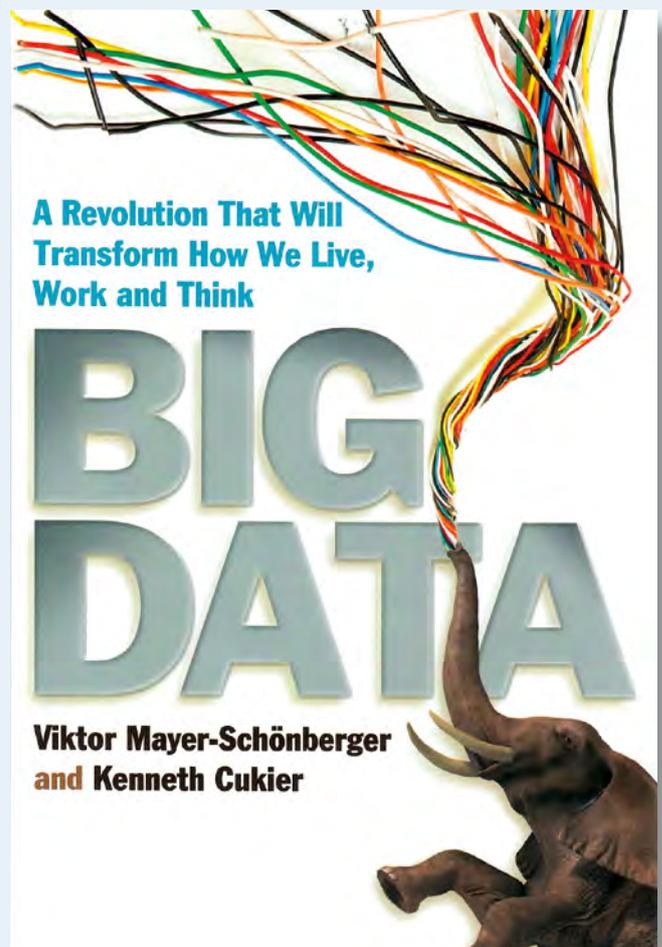
In the 1890 novel *The Sign of Four*, the fictional detective Sherlock Holmes explains to his companion Dr John Watson his approach to the science of detection.

“Oh, didn't you know?” he cried, laughing. “Yes, I have been guilty of several monographs. They are all upon technical subjects. Here, for example, is one ‘Upon the Distinction Between the Ashes of the Various Tobaccos.’ In it I enumerate a hundred and forty forms of cigar-, cigarette- and pipe-tobacco, with coloured plates illustrating the difference in the ash. It is a point which is continually turning up in criminal trials, and which is sometimes of supreme importance as a clue. If you can say definitely, for example, that some murder has been done by a man who was smoking an Indian lunkah, it obviously narrows your field of search. To the trained eye there is as much difference between the black ash of a Trichinopoly and the white fluff of bird's-eye as there is between a cabbage and a potato.”<sup>1</sup>

Sherlock Holmes' interest in tobacco ash, like his interest in all the other 'technical subjects', is designed to generate inferences. If the ash from a particular type of tobacco is found at a crime scene, it may be inferred that a particular type of person might have been present there. Together with other

inferences – based on the size of a footprint or the length of a stride, for instance – this tiny detail can be used to create a picture that is not in itself complete but is sufficiently informative to point to the putative suspect. Sherlock Holmes' creator, Sir Arthur Conan Doyle, was in fact responsible for the development of many forensic methods that were subsequently adopted by the British Police.<sup>2</sup>

If Holmes were alive today, he would probably be writing algorithms rather than monographs. For the principles that inform his forensic approach are precisely those that inform big data. As Viktor Mayer-Schönberger and Kenneth Cukier argue in their 2013 book of the same name, big data is “the ability of society to harness information in novel ways to produce useful insights or goods and services of



significant value ... The data can reveal secrets to those with the humility, the willingness, and the tools to listen.” And they observe that: “Predictions based on correlations lie at the heart of big data.”

Predictions based on correlations – not on causality. In this well-researched and carefully structured analysis, the authors argue that society’s new ability to dice and slice vast amounts of information will lead to a change in the way we think: “Since Aristotle, we have fought to understand the causes behind everything. But this is starting to change. In the age of big data, we can crunch an incomprehensible amount of information, providing us with invaluable insights about the *what* rather than the *why*.” This is a seismic shift. It allows us to make judgements on the basis of *observed relationships* rather than *observed causes* – even if the pictures generated are not complete.

.....  
“Big data allows us to make judgements on the basis of *observed relationships* rather than *observed causes*”  
.....

Big data “takes information generated for one purpose and re-uses it for another – in other words, the data moves from primary to secondary sources. This makes it more valuable over time,” explain Mayer-Schönberger and Cukier.

Big data reveals patterns that can be interpreted to make predictions about future behavior, and is thus a crucial tool in the effort to improve the delivery of medical services to those who need them, for instance, or in the battle against terrorism. Its application in the service of improved nutrition is extensively discussed in this issue of *Sight and Life* magazine. However, “big data allows for more surveillance of our lives while it makes some of the legal means for protecting privacy largely obsolete. It also renders ineffective the core technical method of preserving anonymity. Just as unsettling,” the authors continue, “big-data predictions about individuals may be used to, in effect, punish people for their propensities, not their actions.”

Palpably concerned about the potential of the genie they have described, Mayer-Schönberger and Cukier conclude that “Our task is to appreciate the hazards of this powerful technology, support its development – and seize its rewards.” Their final sentence is a plea: “We must use this tool with a generous degree of humility ... and humanity.”

Big data in the hands of a Sherlock Holmes will always make the world a better and a safer place. But, as Sherlock Holmes well knew, his nemesis, the evil Professor Moriarty, was unfortunately every bit as clever as he.

.....  
**Review by Jonathan Steffen**  
**Correspondence: Jonathan Steffen,**  
*Suite C, 153 St Neots Road, Hardwick,*  
*Cambridge CB23 7QY, UK*  
**Email: jonathan.steffen@corporatestory.co.uk**  
.....

**References**

- 01. Conan Doyle A. *The Sign of Four*. London: Spencer Blackett; 1890.
- 02. O'Brien J. Sherlock Holmes: Pioneer in Forensic Science. *Encyclopædia Britannica*. Internet: <https://www.britannica.com/topic/Sherlock-Holmes-Pioneer-in-Forensic-Science-1976713> (accessed 28 May 2019).