

BOOKS

Armageddon awfully close

Soon, a massive solar flare will bring the world to a halt, says *Andrew Robinson*

THE DARK SIDE OF TECHNOLOGY

by Peter Townsend



306PP, OUP, £25,
EBOOK £20



A century and a half ago, a sunspot caused a massive solar flare. On Earth, the northern lights were visible as far south as Cuba. Morse-code telegraph cables – state of the art in 1859 – acted like radio antennae, sucking energy from the electrical-magnetic atmospheric storm. Their pulses of high voltage generated sparks in the telegraph offices and gave shocks to the telegraph operators, but caused no greater damage.

By 1921, however, when electrical generators and equipment had become commonplace in industrialised nations, a more modest sunspot wrought havoc. In the United States and Sweden, telegraph control buildings were incinerated by electrically generated fires. In New York, the

Central Railroad's signalling equipment was wrecked, and a fire burnt down at least one building. Fortunately, power grids were not yet widespread.

In 2012, a solar flare as powerful as that of 1859 crossed Earth's orbit around the Sun, missing our planet by only nine days. Another such flare hitting Earth is quite likely – a one-in-10 chance – during the next few years, and is virtually a certainty by the end of the century. What will be its impact

on our civilisation?

Catastrophic, because of our now far more interconnected technology, according to the opening section of *The Dark Side of Technology* by Peter Townsend, a professor of experimental physics in engineering. Despite an uneven style and an unwarranted absence of any references or an index, his book is broad, thoughtful – and justifiably disturbing about the perils inherent in humanity's long love affair with technology's astonishing benefits.

Less than 24 hours after another future massive solar flare, high-energy solar particles would reach Earth and knock out the sensitive electronics in satellites, maybe permanently, along with global communications, including air



traffic control. On land, the burst of solar energy would disrupt power grids, with the pylons and electrical cable networks acting like enormous and efficient antennae. Larger cities would be gridlocked because they would have no lighting, including no traffic lights, a situation that would induce panic and mass attempts to escape. Fires would be inevitable; with no electrical power to pump water, many would rage out of control.

Although nothing can be done to control solar flares, technology is theoretically under our control. Efforts are being made to shift an unused satellite and to station a newly launched probe, the Deep Space Climate Observatory, away from Earth towards the Sun, to give advance warning of a big particle flux and possibly protect satellite electronics. But there are no plans by electricity companies to keep sufficient replacement parts, such as transformers, because of the variety and expense of what might be required. Townsend believes

that “protective energy grid measures should be funded as a priority by central governments”.

He is not optimistic about the human race acting for its own good. “I suspect that the truly catastrophic potential for global exploitation and destruction is primarily unrelated to technology, and related instead to the expansion of the population, as well as to self-interest and human nature. Technologies are just the enabling routes to self-destruction, not the cause.”

As evidence, he cites our blinkered pursuit of technology in fashion, past and present, such as immense wigs, constraining corsets, breast implants, Botox and filler procedures. These have all been seen as desirable, despite their known risks to hygiene, the skeleton, internal organs, the skin and physical fitness. And there have always been engineers and surgeons willing to encourage such

fashions in pursuit of profit. If we cannot recognise the “dark side” of this technology, which intimately impinges on our own health, asks Townsend, what chance is there that we shall respond with foresight or far sight to complex technological problems that lie way outside our daily experience, such as a communications satellite irradiated by a solar flare or a nuclear power plant flooded by an earthquake-induced tsunami?

Consider, too, fashions in personal computing. IT companies now encourage us to store all our data in what is euphemistically known as the “cloud”, rather than on our own desktop computers, arguing that the company will constantly update the storage formats for our data, thereby allowing us to avoid the inevitable problem of obsolescence.

Many computer users go along with this promise, because cloud storage is cheap, convenient and

seemingly infinite. But this means that the company has access to our confidential information. Moreover, there is no guarantee that it will keep its side of the deal. It may get taken over, or it may go bankrupt. Moreover, if we stop our payments – or, for that matter, die – the company may render our data inaccessible, or even delete it. Perhaps “cloud computing” should be renamed “cloud-cuckoo computing”.

 n the whole, advances in technology are dehumanising. They tend to replace face-to-face contact with human-machine contact, as in social media and online purchasing. We have all seen cafés with “a whole table of ‘friends’ using their mobiles for talking, texting or emailing other people”, observes Townsend. As I sat down to write this, Amazon proudly announced on Twitter

and YouTube its first test in Cambridge of a delivery by drone as follows: “First Prime Air delivery. Fully autonomous – no human pilot. 13 minutes – click to delivery.”

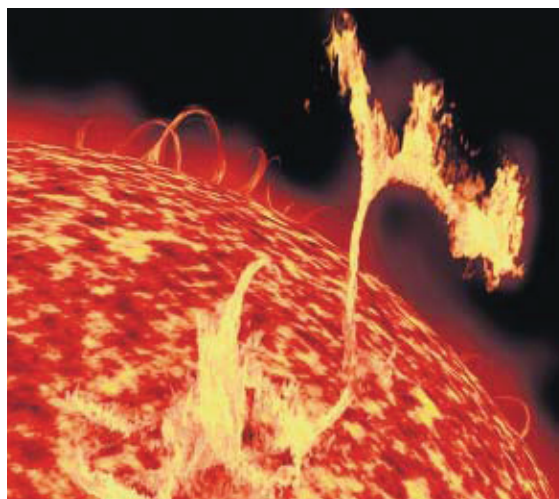
The book is stronger on analysis of technology’s “dark side” than on enlightened and feasible proposals for change. But in the final chapter, “Radical suggestions and a grain of hope”, Townsend suggests an intriguing reform of the democratic process. In the House of Commons, rather than each political party seated together, facing the opposition, why not use technology to reduce tribalism? On entering the chamber, MPs would present their identity cards to a random seat number generator and must

then occupy their allotted seats, regardless of their party affiliation, while speaking and voting. Moreover, instead of the division bell and public vote, MPs would vote from their seats using a confidential three-button system indicating whether they were for, against or an abstainer.

“This is not going to solve all political problems,” says Townsend. “Nevertheless, the random seating would force a very different style of debate that might be far more rational, and stop the confrontational rubbish that we currently witness.”

Whether that would lead to the humanising, or the dehumanising, of democracy by technology is an interesting debate – although not, I suspect, a debate likely to be held in Westminster as things stand.

Andrew Robinson is the author of *Earth-Shattering Events* (Thames & Hudson). To order *The Dark Side of Technology* for £16.99 plus £1.99 p&p, call 0844 871 1515



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Off grid: a solar flare could cripple communications right, a drone

