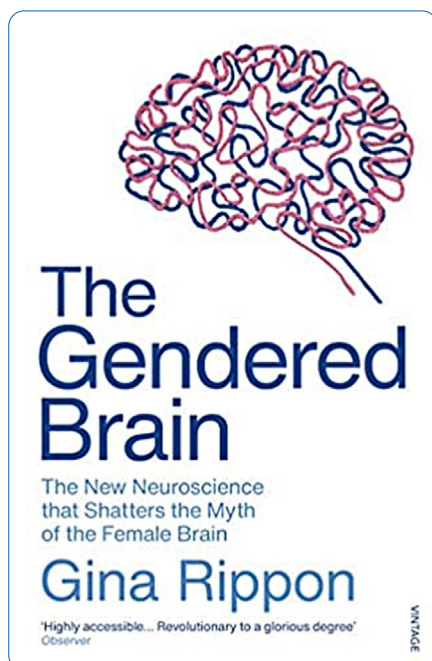


Reviews published in *School Science Review* are the opinions of individual reviewers, and are not an official Association for Science Education (ASE) view or endorsement of the resource. Reviewers are selected to write reviews on the basis of their experience and interests. They are expected to draw attention to perceived weaknesses or limitations of a resource as well as its strengths. The reviews are written from the standpoint of someone seeing the materials for the first time and considering how they themselves would use them, or think colleagues would be likely to use them.

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The Gendered Brain: The New Neuroscience that Shatters the Myth of the Female Brain
Gina Rippon
 London: Vintage, 2020
 424 pp. £7.99
 ISBN 978 1 78470 681 4

For centuries, the debate has raged on the differences between men and women. *The Gendered Brain* takes us on a journey of bad science, misquoted experiments

and assumptions through time and leads us to today, where we still have not made much progress in the fight against gender stereotypes!

The book aims to use the latest neuroscience knowledge and technology to explore the stereotypes of male and female, and allows us to ask the questions, *How different are we really?* and *If we are different, why?* The book highlights the plasticity of the brain, the stereotypes that we are *not* born with, and how the gaps increase as we get older, as well as the social factors potentially driving this.

The author Gina Rippon is a cognitive neuroscientist at Aston University with an impressive set of publications. She was made an honorary fellow of the British Science Association in 2015 and has been involved in several initiatives to improve girls' participation in STEM, such as the WISE programme.

The book is written for the general reader and it is very readily accessible. I believe that anyone with an interest, but not necessarily experience in science, would feel

comfortable reading this book; bar a couple of words that they may need to clarify, such as synapse, everything is well explained and there is a wonderful use of humour to lighten the book. Several labelled drawings of the brain helpfully allow the reader to visualise what is being discussed. The book moves through time, first through history and then through ageing. The final chapters draw together the main points raised throughout the journey and the impact this has on society: the abundance of experiments and issues raised throughout make this a useful aid. For those who want to explore further, Rippon provides an extensive list of references, which she uses to back up her findings as well as highlight flaws in experiments.

The book brings an abundance of scientific research to the general reader's attention, discussing attendant problems and limitations of these studies, differentiating statistically significant and non-significant findings and illustrating the shocking impact of

the media in hyping up ‘neurotrash’. It presents the nature-versus-nurture argument in relation to why women ‘don’t do’ science, and relates new neuroscience technology and findings to factors such as reward and self-esteem. I find it sad how society has been putting limits on girls in science for so long, and the effects this may have on their mental health. Towards the end of the book the hot topic of transgender is talked about, but I was a bit surprised this was not mentioned earlier.

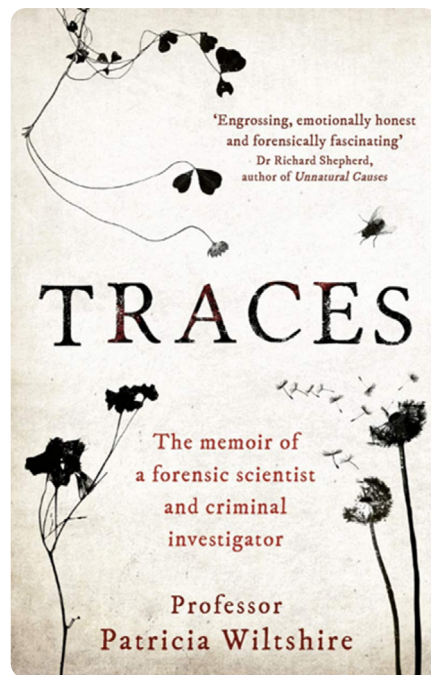
As a female in science (and research before becoming a teacher), I have on occasions felt uncomfortable and that I didn’t fit in, but I put this down to other factors. Reading this book has made me wonder how being female influenced my choice in changing career paths to become a teacher and educational researcher. Was this solely *my* choice, or was I subconsciously influenced to go into a ‘caring, family-friendly’ career?

As a teacher, I have believed that I treat all pupils equally and that everyone can ‘do science’. After reading this book, I can now see that maybe I don’t do enough to challenge the stereotypes and, as the book says, ‘*fill the gaps in the leaky pipes as best I can*’.

The book is in no way ‘male bashing’, but there is some use of sarcasm to soften the blow of Rippon’s criticisms of particular experiments and findings. At times, the sheer number of experiments quoted diverted me from the thread of the book, but each time I was guided back on track, aided by the flow of each chapter.

I would highly recommend this book to any teacher or parent who wants to ensure all their pupils (and children) have the best chance to succeed in what they want to do and to use science to help challenge gender stereotypes.

Colette Christian



Traces: The Memoir of a Forensic Scientist and Criminal Investigator

Patricia Wiltshire

London: 535 (Bonnier Books), 2019
294 pp. £16.99

ISBN 978 1 78870 061 0

Professor Patricia Wiltshire is one of our most eminent forensic scientists and criminal investigators, specialising in the disciplines of forensic ecology, botany and palynology. She has been involved in some very famous criminal cases in the UK, including the Soham murders and the decades-old cold-case murder of Christopher Laverack. She has also been the subject of a number of television and radio programmes.

In her book she takes us through a number of her cases, starting with the first in 1994 when, working as an environmental archaeologist at University College London, she got a call from a policeman working for Hertfordshire constabulary for assistance in a murder case. She uses the description of the cases to show the nature of the work she does and the need for a systematic forensic approach to the crime scene. She shows that the incredible complexity of the biological evidence she routinely deals with highlights the

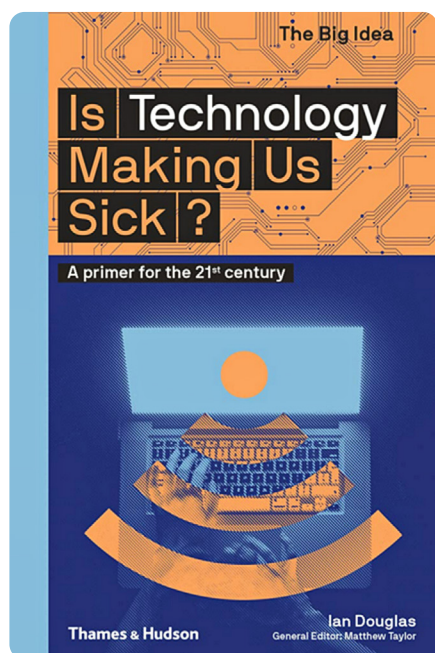
need for detailed and continuing study and the willingness to challenge and test all assumptions.

Although this book is autobiographical, it is not a life story but, as the author says, more of a journey through the world she works in. She does share with us some of her story, starting with her childhood as the daughter of a Welsh miner, her substantial periods of physical illness that caused her to miss a lot of school, the breakdown of her parents’ marriage and the formative support of her grandmother. Her early working life is outlined, initially training and working as a medical laboratory technician but then moving into secretarial work. She describes her sense of boredom and then finding her niche by taking a botany degree and graduating at the age of 31, which eventually led to her becoming an environmental archaeologist.

Near the end of her book she makes a number of points about the state of forensic science in the UK and the consequences of the closure of the Forensic Science Service, and how it should be a cause for concern. She also expresses disquiet at the number of students studying forensic science courses who have not got the detailed scientific knowledge that comes from a more specialist science degree.

Her writing style is warm and engaging and the book is a relatively easy read, despite the complexity of the subject matter. She comes across as a strong-minded clever person with an enduring interest in the natural world. I feel she leaves the reader with a very clear understanding of how she approaches the work at a scientific and personal level. This is an excellent book for anyone who wants to understand what is involved in top-level forensic investigations in a complex and evolving area.

Alex Chaplin



Is Technology Making Us Sick?
A Primer for the 21st Century
 Ian Douglas
 London: Thames & Hudson, 2020
 144 pp. £12.95
 ISBN 978 0 500 29531 1

In the Introduction to this book we are told that ‘*Technology is harming us in certain specific ways*’. This raises questions such as: ‘*What are those ways, how serious is the harm and... what can we do about it?*’ The rest of the book takes us through the history of the impact of technology – real and apparent – on our health when we live with contemporary technology. This text is about change and the problems human beings have had in coping with technological change. It is a good read and will be of interest to anyone concerned with the impact of technology on our lives.

This is a book in the series ‘The Big Idea’, overseen by general editor Matthew Taylor. The layout of the text accords to the publisher’s ‘quick-recognition text hierarchy’, which means that by reading the two largest font sizes one can get a grasp of the issues in half-an-hour. One should be able to read the whole book including all the font sizes in a couple of hours. There are 180 illustrations and a good list of further reading.

The author raises interesting questions, and each chapter ends with a question or provocative statement. Buy a copy for the secondary school/sixth form/college library and ensure that it is read.

J. Keri Davies



Can We Save the Planet? A Primer for the 21st Century
 Alice Bell
 London: Thames & Hudson, 2020
 144 pp. £12.95
 ISBN 978 0 500 29530 4

As the title indicates, this book sets out to provide a primer on the environmental crises facing us – the causes, the effects and what might be done about them. It is one of ‘The Big Idea’ series of books, each of which sets out to promote debate on a question such as *Is Technology Making Us Sick?* (also reviewed in this issue) and *Will AI Replace Us?* (reviewed in *SSR*, December 2019).

Can We Save the Planet? consists of six chapters (*Introduction, The human planet, A crisis situation, The techno-fox, Political solutions and Conclusion*), along with suggestions for further reading and an index. The book is visually striking. There are images on each double-page spread of the six chapters, most of them in colour, but what is really striking is the use of different sizes of text for each paragraph. The

idea of this ‘quick-recognition text hierarchy’ is that if you want to get a quick overview, rather than reading every paragraph, you can concentrate on the paragraphs that have the biggest text sizes. The large text certainly grabbed my attention, but sometimes it seemed to be simply asserting an opinion or offering a comment such as, ‘*Welcome to the Anthropocene*’ (p. 18). To me, this changing of text size felt a bit gimmicky and distracting, and in the end I felt I had to read every last bit of text in the six chapters, to ensure I hadn’t missed anything.

The images chosen are varied, and include photographs showing the consequences of pollution and climate change along with several graphs and photographs of environmental activists. Some of the images might provide good starting points for discussion. Any text relating to the images on a double-page spread is in a block of very small text, separate from the images. At one point this separation, combined with the attention-grabbing effect of large text, had an odd and distracting effect: immediately below some photographs of Yosemite on page 34 is a paragraph of large text, beginning with the sentence, ‘*Whether you are disgusted or delighted by this image of a human-dominated planet is often down to personal philosophy or faith.*’ The photographs show trees and mountains, but no obvious buildings or people. The large text in this case does not refer to the photographic image above it but to a description on the previous page.

I had a different problem with the text relating to the image on page 134, which had me puzzled at first: ‘*Kolmanskop, Namibia, once boosted a ballroom, a casino, a hospital with the first 2-ray station in the southern hemisphere and Africa’s first tram. Today, it’s a ghost town.*’ OK, boosted was clearly meant to be boasted but what was a hospital with a 2-ray station? Change 2-ray

to X-ray: mystery solved! What a shame nobody picked that up before it was printed.

The paragraph of large text on page 43 begins with the following information: ‘Carbon is especially good at trapping heat from the sun. As it blankets the Earth, it keeps us just that little bit warmer. It is a member of a group of so-called “greenhouse gases”’. Fortunately, I didn’t spot that particular gremlin anywhere else, but once was disturbing enough.

The inside back cover describes the author as a campaigner, writer and researcher, specialising in the history and politics of science, technology and the environment, and states that she is currently a co-director of a climate change charity. The tone of the book is consistent with that. There is plenty of climate change information in this book, but the presentation and tone put me off.

Miriam Chaplin

The Story of More: How We Got to Climate Change and Where to Go from Here

Hope Jahren

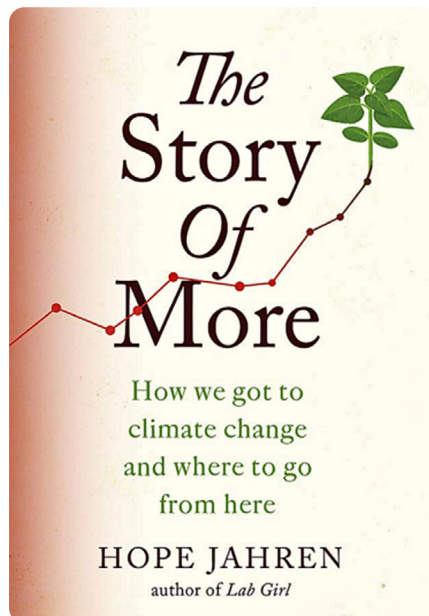
London: Fleet, 2020

208 pp. £8.99

ISBN 978 0 7088 9898 7

I really like this book. Hope Jahren is a scientist and a writer, and this book is an engaging presentation of environmental change: the title tells you what her book is going to cover in the broadest sense, but what is so good is the way she does that. The whole book carries the message. The structure, detail and pace give the feel of it having been crafted by a skilled teacher.

In the first chapter, Hope Jahren tells us how, back in 2009, her



departmental chair told her that she had to teach a course on climate change. She duly researched global change with the aim of presenting it in concrete terms for her students, and taught the course for several years before leaving America to work in Norway in 2016. This book is based on her research and prompted by her desire to communicate her findings to a wider audience. She sets out to avoid preaching and aims instead to present facts about global change in its various forms. A quiet humour pervades the book without ever diminishing the starkness of the messages about the damage being done by the quest for ‘more’.

In the course of several chapters, we are told about the different ways in which humans have learned to produce more and the consequences of doing that: more food through improved crops and livestock, more comfortable homes with more labour-saving devices and faster transport through improved technology, but also more waste, increasing energy demand and increasing global temperatures. The

scientific explanations are clear and easy to follow. The chapters that make up each of the book’s five parts are short and each of them delivers a key point. Stories about real people and how their lives are different from those of their parents and grandparents make it easier to relate to global changes. The facts and figures Jahren presents highlight the inequalities between the lives of the richest and poorest, along with the damage being done to the planet.

I don’t think I have ever enthused about a book’s appendix before, but this book is an exception: the appendix is not so much an add-on as a plenary section, and a further expression of the author’s approach. It begins by asking the reader to consider what actions they might take if they want to change things: what matters most to them and what are they prepared to do? Jahren then uses the example of personal electricity usage to illustrate the possible effects of a series of lifestyle changes. She follows this with a list of global changes since 1969, most but not all of them bad, and some of them truly shocking: taken as a whole the catalogue of changes presents a disturbing picture. Finally, she talks about the sources she used and the choices she made, such as why she selected particular data sets and why she chose to focus on the experience of women. This isn’t just another dry reading list: this is somebody showing you how scientists work and showing you the kinds of places to start looking if you want to find out more for yourself.

This book is worth reading both for your own interest and as a teacher. Encourage your students to read it, too.

Miriam Chaplin

Reviewers

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