Royal Society Science Book Prize Reading Club

> This prize celebrates great writing about science and the scientists who make it happen. There has never been a more exciting time for popular and accessible science writing. There is a huge appetite for books across all topics of science and writers who can explain and inspire, entertain and inform.
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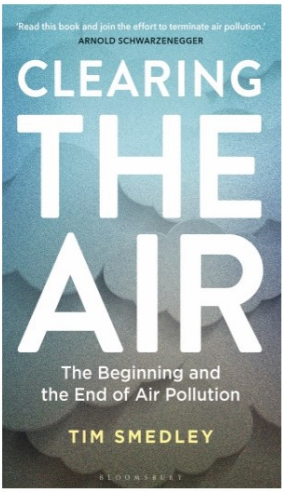
> Sir Nigel Shadbolt FREng FRS, Chair of judges



Clearing the Air : the beginning and the end of Air Pollution
By Tim Smedly

Air pollution has become the world's greatest environmental health risk, and science is only beginning to reveal its wide-ranging effects. Globally, 19,000 people die each day from air pollution, killing more than HIV/AIDS, tuberculosis, malaria and car accidents combined.

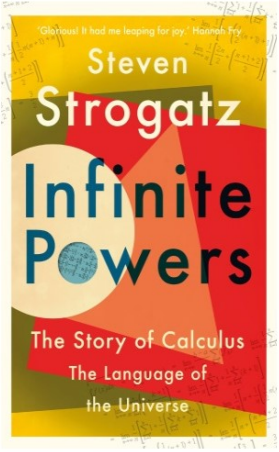
What happened to the air we breathe?

Sustainability journalist Tim Smedley has travelled the world to try and find the answer, visiting cities at the forefront of the fight against air pollution, including Delhi, Beijing, London and Paris. With insights from the scientists and politicians leading the battle against it, and people whose lives have been affected by it,
Clearing the Air tells the full story of air pollution for the first time: what it is, which pollutants are harmful, where they come from and - most importantly - what we can do about them.

Air pollution is a problem that can be solved. The stories uncovered on this journey show us how.

Clearing the Air is essential reading for anyone who cares about the air they breathe. And this much becomes clear: in the fight against air pollution, we all have a part to play. The fightback has begun.

'Compulsory reading' Chris Boardman



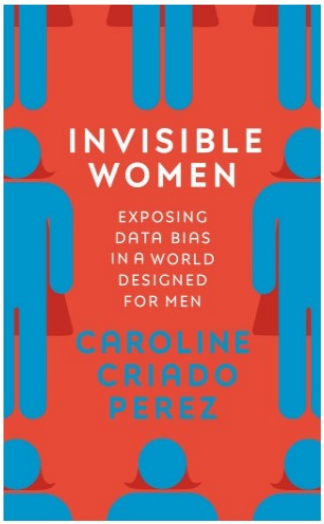
Infinite Powers: the story of calculus.

By Stephen Strogatz

A magisterial history of calculus (and the people behind it) from one of the world's foremost mathematicians.

This is the captivating story of mathematics' greatest ever idea: *calculus.* Without it, there would be no computers, no microwave ovens, no GPS, and no space travel. But before it gave modern man almost infinite powers, calculus was behind centuries of controversy, competition, and even death.

Taking us on a thrilling journey through three millennia, professor Steven Strogatz charts the development of this seminal achievement from the days of Archimedes to today's breakthroughs in chaos theory and artificial intelligence. Filled with idiosyncratic characters from Pythagoras to Fourier, *Infinite Powers* is a compelling human drama that reveals the legacy of calculus on nearly every aspect of modern civilisation, including science, politics, medicine, philosophy, and much besides.



Invisible Women : exposing bias in a world designed for men.
By Caroline Criado Perez

Imagine a world where…

· **Your phone is too big for your hand**
· **Your doctor prescribes a drug that is wrong for your body**
· **In a car accident you are 47% more likely to be injured.**

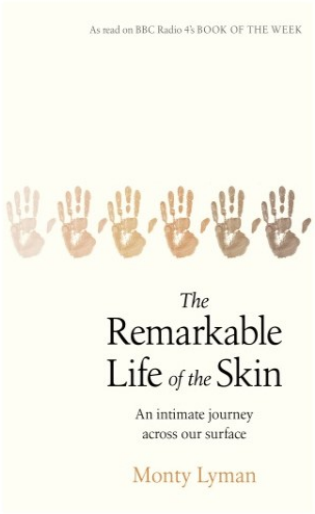
If any of that sounds familiar, chances are you're a woman.

From government policy and medical research, to technology, workplaces, and the media. *Invisible Women* reveals how in a world built for and by men we are systematically ignoring half of the population, often with disastrous consequences. Caroline Criado Perez brings together for the first time an impressive range of case studies, stories and new research from across the world that illustrate the hidden ways in which women are forgotten, and the profound impact this has on us all.

Discover the shocking gender bias that affects our everyday lives.

'A book that changes the way you see the world' *Sunday Times*

'Revelatory, frightening, hopeful' Jeanette Winterson



The Remarkable Life of the Skin : an intimate journey across our surface.

By **Monty Lyman**

- 'An exciting introduction to a little-known microscopic universe and to a talented new writer.' *Sunday Times*

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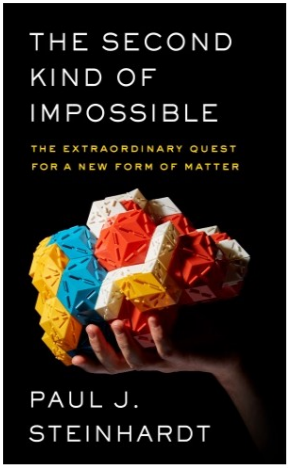
How does our diet affect our skin? What makes the skin age? And why can't we tickle ourselves?

Providing a cover for our delicate and intricate bodies, the skin is our largest and fastest growing organ. We see it, touch it and live in it every day. It's a habitat for a mesmerizingly complex world of micro-organisms and physical functions that are vital to our health and our survival. It's also one of the first things people see about us and is crucial to our sense of identity. And yet how much do we really know about it?

Through the lenses of science, sociology and history, Dr Monty Lyman leads us on a journey across our most underrated and unexplored organ and reveals how the skin is far stranger and more complex than you've ever imagined.



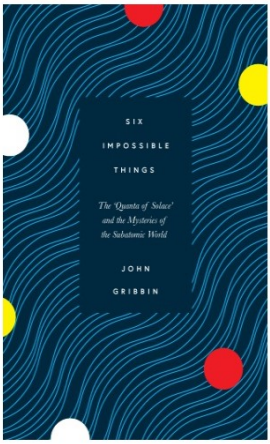
The Second Kind of Impossible: the extraordinary quest for a new type of matter.

By **Paul J. Steinhardt**

One of the most fascinating scientific detective stories of the last fifty years, an exciting quest for a new form of matter. "A riveting tale of der-ring-do" (*Nature*), this book reads like James Gleick's *Chaos* combined with an *Indiana Jones* adventure.

When leading Princeton physicist Paul Steinhardt began working in the 1980s, scientists thought they knew all the conceivable forms of matter. *The Second Kind of Impossible* is the story of Steinhardt's thirty-five-year-long quest to challenge conventional wisdom. It begins with a curious geometric pattern that inspires two theoretical physicists to propose a radically new type of matter--one that raises the possibility of new materials with never before seen properties, but that violates laws set in stone for centuries. Steinhardt dubs this new form of matter "quasicrystal." The rest of the scientific community calls it simply *impossible*.

The Second Kind of Impossible captures Steinhardt's scientific odyssey as it unfolds over decades, first to prove viability, and then to pursue his wildest conjecture--that nature made quasicrystals long before humans discovered them. Along the way, his team encounters clandestine collectors, corrupt scientists, secret diaries, international smugglers, and KGB agents. Their quest culminates in a daring expedition to a distant corner of the Earth, in pursuit of tiny fragments of a meteorite forged at the birth of the solar system.



Six Impossible Things: The 'Quanta of Solace' and the Mysteries of the Subatomic World

By **John Gribben**

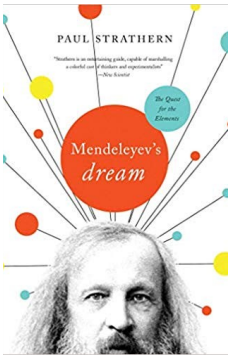
'An accessible primer on all things quantum' -

Quantum physics is strange. It tells us that a particle can be in two places at once. Indeed, that particle is also a wave, and everything in the quantum world can be described entirely in terms of waves, or entirely in terms of particles, whichever you prefer.

All of this was clear by the end of the 1920s. But to the great distress of many physicists, let alone ordinary mortals, nobody has ever been able to come up with a common sense explanation of what is going on. Physicists have sought 'quanta of solace' in a variety of more or less convincing interpretations. Popular science master John Gribbin takes us on a delightfully mind-bending tour through the 'big six', from the Copenhagen interpretation via the pilot wave and many worlds approaches.

All of them are crazy, and some are more crazy than others, but in this world crazy does not necessarily mean wrong, and being more crazy does not necessarily mean more wrong.

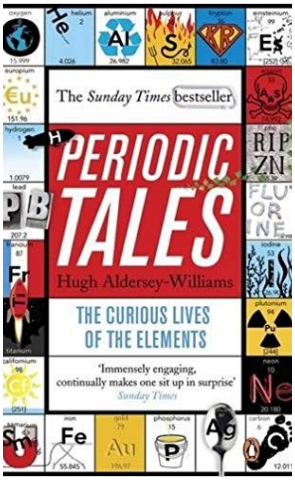
The following two books are not Royal Society Shortlisted but are important books in the field of Chemistry and well worth reading.



Mendeleyev's Dream : the quest for the elements.
By **Paul Strathern**

Framing this history is the life story of the nineteenth-century Russian scientist Dmitri Mendeleyev, who fell asleep at his desk and awoke after conceiving the periodic table in a dream-the template upon which modern chemistry is founded and the formulation of which marked chemistry's coming of age as a science. From ancient philosophy through medieval alchemy to the splitting of the atom, this is the true story of the birth of chemistry and the role of one man's dream.

In this elegant, erudite, and entertaining book, Paul Strathern unravels the quixotic history of chemistry through the quest for the elements.



Periodic Tales : the curious lives of the elements

By **Hugh Aldersey-Williams**

Everything in the universe is made of them, including you.

Like you, the elements have personalities, attitudes, talents, shortcomings, stories rich with meaning.

Here you'll meet iron that rains from the heavens and noble gases that light the way to vice. You'll learn how lead can tell your future while zinc may one day line your coffin. You'll discover what connects the bones in your body with the Whitehouse in Washington, the glow of a streetlamp with the salt on your dinner table.

Unlocking their astonishing secrets and colourful pasts, *Periodic Tales* is a voyage of wonder and discovery, showing that their stories are our stories, and their lives are inextricable from our own.