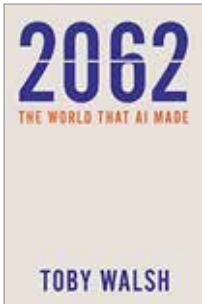


Annual Fellows' Christmas Reading List 2018

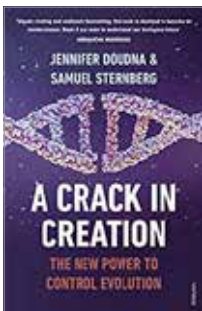


2062: The World that AI Made

Toby Walsh

RECOMMENDED BY: **Professor Toby Walsh FAA**

In 2062, many experts in artificial intelligence (AI) and robotics predict machines will match humans in their capabilities. What will the impact of such AI be on work, war, politics, economics, everyday human life and, indeed, human death?

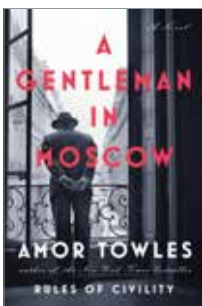


A Crack in Creation

Jennifer Doudna and Samuel Sternberg

RECOMMENDED BY: **Professor Allen Kerr FAA**

This is a personal account of Doudna's involvement in the development of CRISPR-Cas9. I enjoyed it nearly as much as *The Double Helix*. The technique has enormous potential for the improvement of agriculture and health.

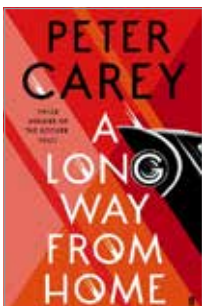


A Gentleman in Moscow

Amor Towles

RECOMMENDED BY: **Professor Stephen Powles FAA**

This is a fictional yet accurate and absorbing tale of a Russian aristocrat falling victim to the revolutionary changes in Russia in the early 1900s. The human spirit soars in this so very well-written tale.

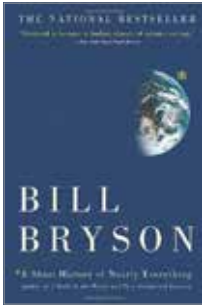


A Long Way From Home

Peter Carey

RECOMMENDED BY: **Professor John Evans FAA**

A rollicking journey around Australia during which a link to past heritage is revealed. Vivid characters placed in beautifully written settings, but the central character is a woman dealing with life's challenges.



A Short History of Nearly Everything

Bill Bryson

RECOMMENDED BY: **Professor Greg Goodall FAA**

A highly readable and entertaining history of life, the universe and everything, written by witty travel writer Bill Bryson. Insightful and well researched, it takes us on a grand tour from the origin of the universe to the rise of civilisation, scratching the itch of scientific curiosity over and over.

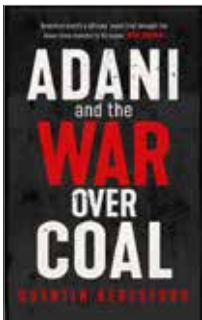


A Spy Among Friends: Kim Philby and the Great Betrayal

Ben MacIntyre

RECOMMENDED BY: **Professor Joss Bland-Hawthorn FAA**

This is one of the best books I've ever read, and to think I thought I knew all there was to know about the Cambridge spies from a dozen books over four decades—not even close. With the Russian archives now open to Western writers, MacIntyre has delivered a spellbinding book, 'unputdownable' to quote The Guardian. By the end of the journey, you come to realise that Philby's damaging influence goes far beyond what was thought a few years ago (5000 deaths?), and his story is more convoluted than dreamt up in any espionage novel.

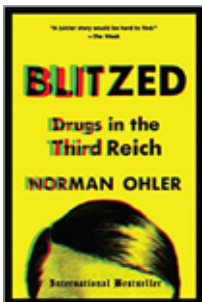


Adani and the War Over Coal

Quentin Beresford

RECOMMENDED BY: **Dr Robin Bedding FAA**

The giant Adani coal mine in Central Queensland poses a grave risk to the planet's climate if it were to go ahead. This book peels away the dark politics of the fossil fuel industry in Australia and India to show how science and environmental values have been swept aside for corporate interests. Yet, scientific organisations have joined with millions of ordinary Australians in stalling, and potentially stopping, the mine in what has been Australia's largest ever environmental protest movement.



Blitzed: Drugs in the Third Reich

Norman Ohler

RECOMMENDED BY: **Professor Nick Martin FAA**

Casts a completely new light on World War II; e.g. the German victories in Poland and France were largely due to methylphenidate. And despite Hitler's strictures on drinking and smoking, he was a serious drug addict. Impressively researched and very well written, I couldn't put it down.

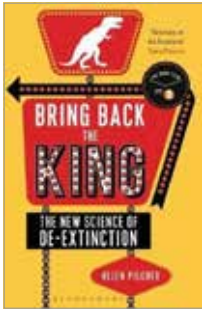


Blue at the Mizzen

Patrick O'Brian

RECOMMENDED BY: **Professor Matthew Colless FAA**

It's fun to identify those elements of Darwin's journal that have been borrowed by Patrick O'Brian for the exploits and discoveries of his fictional character Stephen Maturin in the wonderful Aubrey-Maturin historical novels, particularly 'Blue at the Mizzen', which is largely set in Chile.



Bring Back the King: The New Science of De-Extinction

Helen Pilcher

RECOMMENDED BY: **Professor Michael Archer** FAA

This is one of the best, definitely most entertaining and most factually accurate books about the many research projects currently setting out to challenge the adage that 'extinction is forever'. As Pilcher notes, the full deal hasn't happened yet but there are plenty of projects that are a long way down this path, including research focused on the Mammoth, Auroch, Bucardo, Passenger Pigeon, American Chestnut and ours focused on Australia's extinct Gastric-brooding Frog. In the course of researching this topic, Pilcher conducted extensive interviews with all of us who were willing to answer her questions, hence the result is a very accurate and often very funny introduction to this globally-fascinating and often controversial topic.



Can Science Explain Everything?

John Lennox

RECOMMENDED BY: **Professor Peter Gill** FAA

The strengths and weaknesses of 'science' have been much debated recently and the discussion is an important one. To some, science is a panacea which will eventually allow us to understand everything about everything; to others, it is a tool by which to control the thoughts and limit the actions of large populations. In this short book, John Lennox gently and skillfully demonstrates that neither view is correct and that, although science is astonishingly powerful at answering some questions, it is remarkably weak at answering others.



Chernobyl

Serhii Plokhy

RECOMMENDED BY: **Professor Roger Tanner** FAA

Perhaps the first history of the explosion by an historian. Has won the 2018 Baillie Gifford prize for non-fiction. Good Christmas reading.

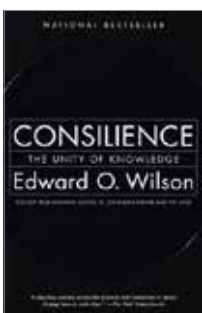


Cognitive Gadgets: The Cultural Evolution of Thinking

Cecilia Heyes

RECOMMENDED BY: **Professor Max Coltheart** FAA

Evolution does not have to be genetic: sometimes it is instead cultural. This book by a theoretical psychologist and Fellow of All Souls tells you what cultural evolution is and how it works, and introduces the new concept of 'cognitive gadgets'—cognitive abilities that have evolved, and are transmitted, culturally rather than genetically, and are unique to humans. Agenda-setting for anthropology, evolutionary biology and cognitive psychology.

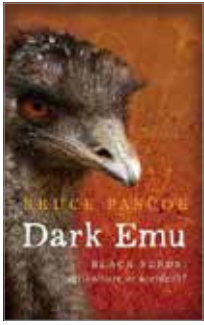


Consilience. The Unity of Knowledge

Edward O Wilson

RECOMMENDED BY: **Professor Peter Hannaford** FAA

Edward O Wilson, a biologist at Harvard, discusses how all knowledge is intrinsically unified, and that behind disciplines as diverse as physics and biology, anthropology and the arts, lies a small number of natural laws, whose locking he calls consilience.



Dark Emu

Bruce Pascoe

RECOMMENDED BY: **Professor Jennie Brand-Miller FAA**

This book will change forever how you think about Australia and its traditional owners. Pascoe argues forcefully that Indigenous Australians were thriving in an environment that was semi-settled in many parts of the country, with villages of thousands of people and huts up to 15 meters in diameter.

The description of a 'fairy-like' burying-ground by the explorer Thomas Mitchell brought me to tears (see page 100).

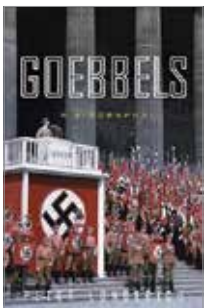


Dear Committee Members

Julie Schumacher

RECOMMENDED BY: **Emeritus Professor Neville Nicholls FAA**

A witty and insightful satire on modern academic life, written as a series of letters of recommendation (of ex-students and colleagues) from a professor of Creative Writing and English at a fictional university. The author is in the Department of English at the University of Minnesota.



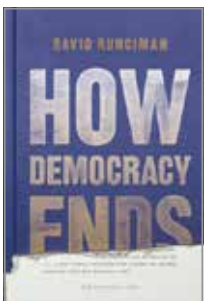
Goebbels

Peter Longrich

RECOMMENDED BY: **Professor Jeremy Mould FAA**

Goebbels is portrayed as a narcissist with a desperate need for an idol, which Adolf Hitler satisfied.

At a time of dangerous leadership it may be useful to examine the pathological activities of the evil propagandist of fake news in the 20th century.



How Democracy Ends

David Runciman

RECOMMENDED BY: **Professor John Chalmers FAA**

How will democracy end? And what will replace it? A preeminent political scientist examines the past, present, and future of an endangered political philosophy. Since the end of World War II, democracy's sweep across the globe seemed inexorable. Yet today it seems radically imperilled, even in some of the world's most stable democracies. How bad could things get?



How Does Government Listen to Scientists?

Dr Claire Craig

RECOMMENDED BY: **Anna-Maria Arabia, Chief Executive, Australian Academy of Science**

At a time when we seek to strengthen the science–policy interface and have evidence inform policy as a matter of routine, this book offers terrific insights and tips and brings together Claire Craig's long and deep experience in this area.

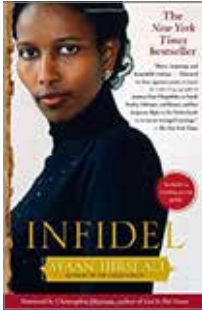


In Praise of Shadows

Jun'ichirō Tanizaki

RECOMMENDED BY: **Professor Bruce McKellar FAA**

By a famous 20th century Japanese author, this book was given to me by a Japanese colleague. It was given to me to educate me, a Westerner, about Japanese (and Chinese) aesthetics, and that was the author's purpose in writing it. I found it instructive and a fascinating read.



Infidel

Ayaan Hirsi Ali

RECOMMENDED BY: **Professor Jacques Miller FAA**

Hirsi Ali writes about her upbringing in a strict Muslim family in four troubled unstable African countries generally ruled by despots. She describes the evolution of her beliefs, her escape to the Netherlands from a forced marriage, her fight for the rights of Muslim immigrant women, and her extraordinary resolve to fight injustice done in the name of religion. Briefly her story recounts how she evolved out of dutiful obedience to become an outspoken pioneering freedom fighter.

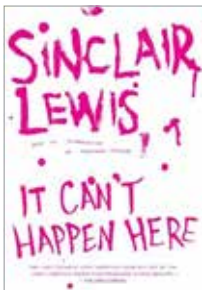


Island of the Blue Foxes: Disaster and Triumph on the World's Greatest Scientific Expedition

Stephen R Bown

RECOMMENDED BY: **Emeritus Professor Michael Barber FAA**

An amazing story of Bering's expedition across Siberia and to Alaska in the 18th century. Surely rivals Cook as the world's greatest explorer but less known.

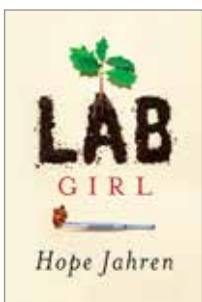


It Can't Happen Here

Sinclair Lewis

RECOMMENDED BY: **Emeritus Professor Harry Poulos FAA**

This book was first published in 1935, but its theme resonates strongly with the current political situation in the USA. It gives a chilling account of the rise of an unscrupulous person to the 'top job', and how the apparent populist becomes a demagogue. It concludes with his fall, via similar mechanisms to those employed in his rise.

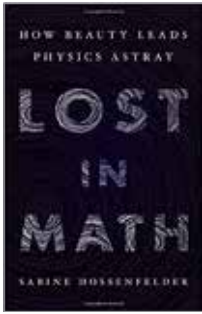


Lab Girl

Hope Jahren

RECOMMENDED BY: **Professor Jenny Graves FAA**

Brutally honest, passionate and wry account of the author's rather eccentric life and career as a geobiologist. Her insider observations on the secret life of plants parallel her growth as a scientist, her struggles with officialdom, budgets, pregnancy and mental disease. I really empathised, groaned, laughed and cried with her.

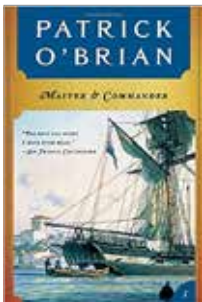


Lost in Math

Sabine Hossenfelder

RECOMMENDED BY: **Professor Robert Delbourgo** FAA

Whether pondering black holes or predicting discoveries at CERN, physicists believe the best theories are beautiful, natural and elegant, and this standard separates popular theories from disposable ones. This is why, Sabine Hossenfelder argues, we have not seen a major breakthrough in the foundations of physics for more than four decades. The belief in beauty has become so dogmatic that it now conflicts with scientific objectivity: observation has been unable to confirm mind-boggling theories, like supersymmetry or grand unification, invented by physicists based on aesthetic criteria. Worse, these 'too good to not be true' theories are actually untestable and they have left the field in a cul-de-sac. To escape, physicists must rethink their methods. Only by embracing reality as it is can science discover the truth.



Master and Commander

Patrick O'Brian

RECOMMENDED BY: **Professor Rod Boswell** FAA

The first of a magnum opus of a more human and believable Horatio Hornblower, beginning around 1805. It is certainly a very good read for those who like to clew the top main gallants and to get an idea of social mores current in the English speaking world of that time.



My Struggle. Book 6: The End

Karl Ove Knausgård

RECOMMENDED BY: **Professor Lois Salamonsen** FAA

The 6th and final book in this addictive autobiographical series completes its depiction of life in all its shades, from moments of great drama to the author's consideration of himself, his ambitions, doubts and frailties. It also contains a lengthy exposition of Hitler in relation to his book Mein Kampf (the same title used by Knausgård), which I found both illuminating and gripping.

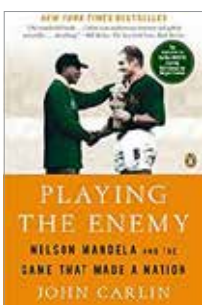


Old School

Tobias Wolff

RECOMMENDED BY: **Professor Wendy Hoy** FAA

I need to read this book yet another time to further grasp its subtleties. These are the reflections of a young man on his journey as an aspiring writer competing for acknowledgement in an elite educational environment. The smooth low-key narrative belies the profundity and complexity of content: deliberations on personal morality, class issues at several levels, great human empathy. It is, to quote the review of Entertainment Weekly, 'emotionally devastating'.

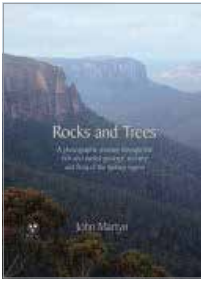


Playing the Enemy: Nelson Mandela and the Game That Made a Nation

John Carlin

RECOMMENDED BY: **Professor Frances Separovic** FAA

Essentially the story of how Nelson Mandela used the 1995 World Cup to help unite post-apartheid South Africa. A great story of inspirational leadership, persistence and brilliant long term strategic planning. The book was difficult to put down and an emotional and uplifting read.



Rocks and Trees: A Photographic Journey through the Rich and Varied Geology, Scenery and Flora of the Sydney Region

John Martyn

RECOMMENDED BY: **Emeritus Professor Ross Street FAA**

This book features the Triassic sedimentary rocks of the Sydney Basin, the younger volcanic and sedimentary deposits, and the diverse flora supported by them. The amazing photography and engrossing text will inform geologists and botanists, and delight the general reader. It was published in 2018 and is available through the website www.step.org.au.



Scrublands

Chris Hammer

RECOMMENDED BY: **Professor Ian Frazer FAA**

A murder mystery set in an Australian town, and with more twists than the average murder story. Difficult to put down once you get started. It will keep you guessing right to the end pages.

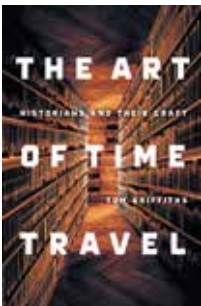


Something for the Pain: a Memoir of the Turf

Gerald Murnane

RECOMMENDED BY: **Professor Oliver Mayo FAA**

A book nominally about horseracing that told me something about life, while making me laugh and almost cry. Murnane is truly a great Australian writer.

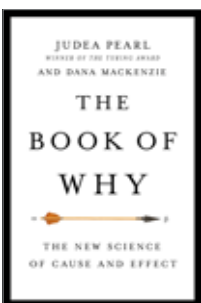


The Art of Time Travel

Tom Griffiths

RECOMMENDED BY: **Professor Henry Burger FAA**

I cannot improve on Tim Flannery's opinion: 'Griffith's luminous new work underlines the inarguable point that if we are truly to understand our history, we must get to know those who wrote it. A must read for anyone interested in Australia's past.' The book has 14 chapters on different Australian historians.

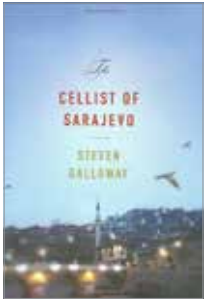


The Book of Why: The New Science of Cause and Effect

Judea Pearl and Dana Mackenzie

RECOMMENDED BY: **Professor Dacheng Tao FAA**

A Turing Award-winning computer scientist and statistician shows how understanding causality has revolutionised science and will revolutionise artificial intelligence.

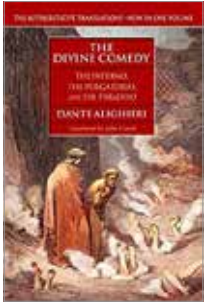


The Cellist of Sarajevo

Steven Galloway

RECOMMENDED BY: **Emeritus Professor Cheryl Praeger FAA**

The book is a profoundly moving account of life in Sarajevo while under siege in the 1990s, from the viewpoint of several residents of the ruined city. The cellist, whom we meet in the first chapter, symbolises the soul of the city as he plays to commemorate those killed.

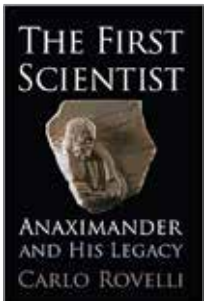


The Divine Comedy

Dante Alighieri

RECOMMENDED BY: **Professor David Doddrell FAA**

Belonging in the immortal company of the great works of literature, Dante Alighieri's poetic masterpiece, *The Divine Comedy*, is a moving human drama, an unforgettable visionary journey through the infinite torment of Hell, up the arduous slopes of Purgatory, and on to the glorious realm of Paradise—the sphere of universal harmony and eternal salvation.

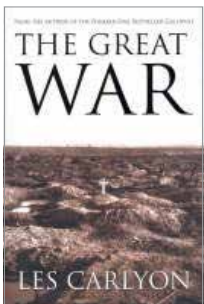


The First Scientist: Anaximander and His Legacy

Carlo Rovelli

RECOMMENDED BY: **Professor Marcello Costa FAA**

This book is by the well known physicist Carlo Rovelli, an Italian physicist from the University of Padua who works now in Marseille. His book 'Anaximander and his legacy', originally published in France in 2009 and now as a paperback from Westholme Publishing in the USA—1st Edition 2017, is in my view one of the best essays in science of the last years. He uses Anaximander as example of clear thinking, rigorous thinking and not accepting religious authority. Carlo demonstrates well that scientific progress is much more about evolution than revolution. As one of the commentators stated, 'Rather than a series of paradigm shifts based on newly discovered data, scientific progress is more about taking radically new perspectives on the same phenomena'. His views encompass a proper philosophical perspective to which I think most scientists can and should adhere.

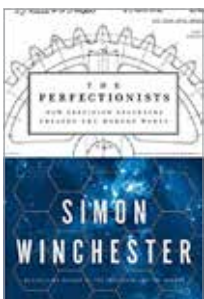


The Great War

Les Carlyon

RECOMMENDED BY: **Professor Jeremy Mould FAA**

The successful author of *Gallipoli* narrates the story of the Western Front from an Australian perspective. The generals involved are evaluated. The stories of individual Australian soldiers are told.

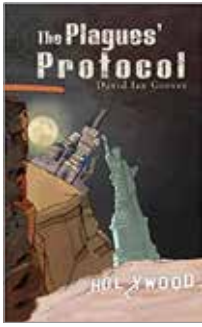


The Perfectionists: How Precision Engineers Created the Modern World

Simon Winchester

RECOMMENDED BY: **Professor Mark Randolph FAA**

Simon Winchester takes us back to origins of the Industrial Age, to England where he introduces the scientific minds that helped usher in modern production. As he introduces the minds and methods that have changed the modern world, Winchester explores fundamental questions. Why is precision important? What are the different tools we use to measure it? Who has invented and perfected it? Has the pursuit of the ultra-precise in so many facets of human life blinded us to other things of equal value, such as an appreciation for the age-old traditions of craftsmanship, art, and high culture?

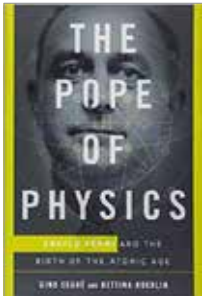


The Plagues' Protocol

David Ian Groves

RECOMMENDED BY: **Professor David Groves** FAA

A series of threatening incidents that appear to mimic the biblical plagues break out in iconic locations in the USA. The US law-enforcement agencies consider that they are related to religious terrorism, but cannot uncover the perpetrators or their motive. In an exploration camp near Lake Victoria, a geologist follows events on CNN and BBC World via satellite, and believes he knows the answer by applying his unique geological thought process to the puzzle, but how can he contact and convince the agencies to test his hypothesis and save the US from disaster?

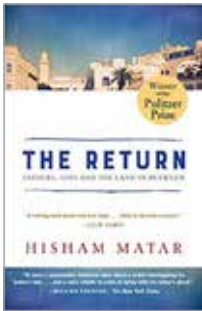


The Pope of Physics: Enrico Fermi and the Birth of the Atomic Age

Gino Segrè and Bettina Hoerlin

RECOMMENDED BY: **Professor Tony Klein** FAA

A very well written new biography of Enrico Fermi including the rise of fascism in Italy and the development of the atomic bomb in the USA. Of interest not only to physicists.

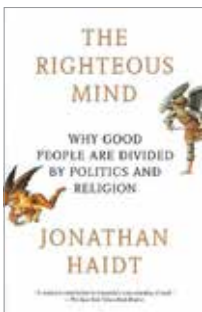


The Return: Fathers, Sons and the Land in Between

Hisham Matar

RECOMMENDED BY: **Dr Brian Walker** FAA

It's his real life story about returning from London to Libya in 2012 to try to find out what happened to his father, who was imprisoned by Gadaffi in 1990. A well-written, intriguing and informative book about what life was and is like in Libya and the machinations of the regime.



The Righteous Mind: Why Good People Are Divided by Politics and Religion

Jonathan Haidt

RECOMMENDED BY: **Professor Karl Glazebrook** FAA

An extremely interesting take (from 2013) on the 'moral divide' between right and left in politics—and why good people on both sides seem to simply talk past each other. Includes an interesting, controversial claim that people on the left have a more limited moral palette. Not sure I am persuaded by that but it is thoughtfully argued.

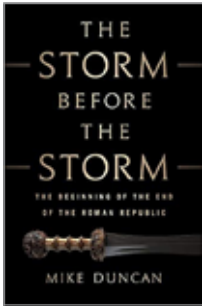


The Ruin

Dervla McTiernan

RECOMMENDED BY: **Professor Michael Hynes** FAA

A satisfyingly complex police procedural set in Ireland. Unlike some others read this year, the plot mostly holds together and characters are well drawn.

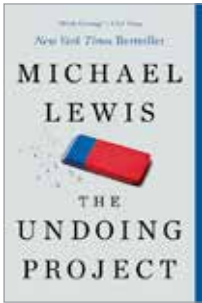


The Storm Before the Storm

Mike Duncan

RECOMMENDED BY: **Professor Rod Boswell FAA**

Mike Duncan presents a well researched, witty and sometimes sarky introduction to the forces behind the rise of Caesar. Rome, so the myth goes, got rid of genetically tainted kings around 400BC and after 350 years of a senate-based republic chose to return to genetically tainted dictators. This book tries to explain the fall of the Republic.



The Undoing Project: A Friendship That Changed Our Minds

Michael Lewis

RECOMMENDED BY: **Professor Simon Gandevia FAA**

This is a delightful and sometimes emotive account of the friendship and academic collaboration between Daniel Kahneman and Amos Tversky. Not only does it cover the scientific work that they did to establish a field of cognitive biases and how they affect all our decision making, but it tells the story of their very different and interesting family and early life. Their second paper together was in Science in 1974: Judgment under uncertainty: Heuristics and biases. With hindsight bias, this was an incredibly insightful and influential work! Kahneman went on to win the Nobel prize in Economic Sciences in 2002. Unfortunately his critical collaborator Tversky had died in 1996. Much of their work and its implications are covered in Kahneman's best selling book Thinking Fast and Slow published in 2011.



Thomas Cromwell: A Life

Diarmaid MacCulloch

RECOMMENDED BY: **Professor the Honourable Barry Jones FAA**

Hilary Mantel, who knows a thing or two about Thomas Cromwell, writes: 'This is the biography we have been wanting for 400 years.' MacCulloch, a superb Oxford scholar, has mastered the archives and produced a stunning account of the man who transformed the administration of England more than any other civilian. His wit is coruscating. It is a masterpiece.

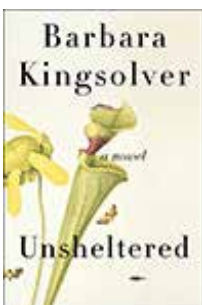


Unbreakable Threads

Emma Adams

RECOMMENDED BY: **Professor Adrian Horridge FAA**

This is the story of how a Canberra child psychiatrist managed to get a young Afghan refugee boy out of a detention camp in Darwin on medical grounds, and rear him with her own three boys. Scott Morrison was Immigration Minister at the time. Read this and weep, then make a promise: we Australians must regain our humanity.

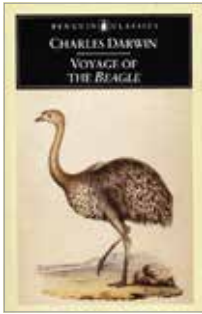


Unsheltered

Barbara Kingsolver

RECOMMENDED BY: **Dr Elizabeth Truswell FAA**

Mary Treat was a nineteenth century biologist whose work deserves to be better known. Kingsolver's novel constructs her life from her journals, published writing and correspondences with Charles Darwin, Asa Gray and Charles Riley. This is a work of fiction but most of its nineteenth century characters and events are real; they are set against a modern American family and its struggles to survive and understand present events and attitudes.

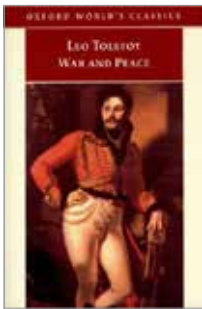


Voyage of the Beagle

Charles Darwin

RECOMMENDED BY: **Professor Matthew Colless FAA**

Charles Darwin's 'The Voyage of the Beagle' is the journal of his circumnavigation of the world. As well as being a fascinating account of a nineteenth-century naturalist's travels, it highlights both the adventurous sangfroid and the omnivorous curiosity of the young Darwin. It's also fun to identify those elements of Darwin's journal that have been borrowed by Patrick O'Brian for the exploits and discoveries of his fictional character Stephen Maturin in the wonderful Aubrey-Maturin historical novels, particularly 'Blue at the Mizzen', which is largely set in Chile.

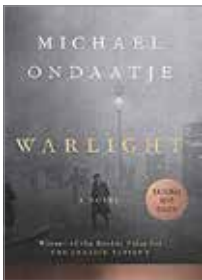


War and Peace

Leo Tolstoy

RECOMMENDED BY: **Laureate Professor Emeritus Graeme Clark FAA**

As distinct from the film, you know the joys and sorrows of the main characters in the context of peace, then war and then peace more personally. In his amusing summary of the characteristics of the different nationalities involved in the Napoleonic wars he describes the Russians, Germans, English, French and Italians as 'self assured' in their own special ways. Tolstoy's own philosophy of life and his ironical analysis of the 1812 retreat of the French pursued by the Russians makes for fascinating holiday reading.

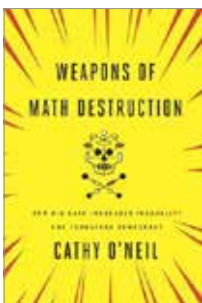


Warlight

Michael Ondaatje

RECOMMENDED BY: **Professor David Day FAA**

The latest novel from the two-time Booker Prize author. A very evocative, somewhat mysterious story set in postwar London. Beautifully sparse prose, as usual from Ondaatje.

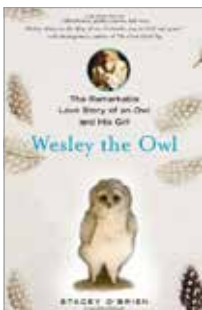


Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy

Cathy O'Neil

RECOMMENDED BY: **Professor Jeremy Mould FAA**

Many of our students become data scientists. Like all of us, they need to ask how their work will be used.



Wesley the Owl: The Remarkable Love Story of an Owl and His Girl

Stacey O'Brien

RECOMMENDED BY: **Professor Georgia Chenevix-Trench FAA**

This is a remarkable story of animal behaviour. Wesley really seems to fall in love with the writer. Stacey O'Brien is trained as a biologist specialising in wild-animal behaviour and now works as a wildlife rescuer and rehabilitation expert.



Who We Were

Lucy Neave

RECOMMENDED BY: **Professor Peter Doherty** FAA

Novels by people with some scientific training are pretty rare. Lucy has now switched to the literary side and is teaching at the ANU. I met Lucy recently at a one-day symposium organised by her, Paul Magee (University of Canberra) and Yvonne Paterson (University of Pennsylvania) on how the process of writing promotes insight and discovery. We heard viewpoints from scientists (me and Yvonne), an economist who is also a novelist, lit fiction writers and poets. I've never been in a room with so many published poets.