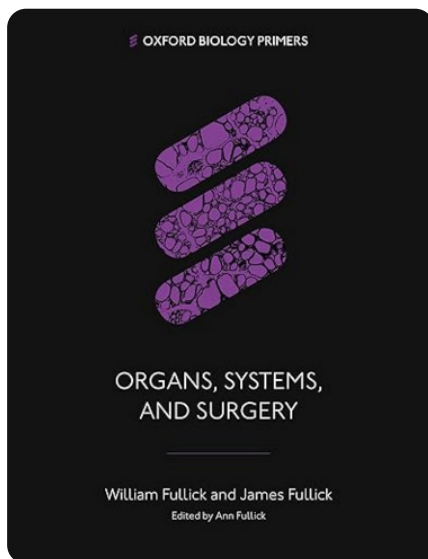


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Organs, Systems, and Surgery (Oxford Biology Primers)

William Fullick and James Fullick
Oxford: Oxford University Press, 2023
200 pp. £22.99
ISBN 978 0 19 886187 4

This book is a genuine page-turner. It is engaging and well illustrated. The case studies and the history of how we arrived at our current understanding is fascinating, grave robbing and all. It provides proper scientific explanations of how the different organ systems work, diseases that typically affect them, as well as alternative treatments. It is aimed at 16+ students, although it would

be suitable to anyone with an interest in science or medicine. The language used makes it accessible to younger students; medical terms are highlighted and included in a glossary. It is particularly recommended for those considering a medical career. Reading this or other books in the Oxford Biology Primers series would be excellent preparation for a medical interview. It should be required reading for biology teachers as it is replete with anecdotes that can be woven into lessons.

For example, do you know that our lungs take up virtually no space at birth? They are inflated with our first breath, which requires a force 20 times bigger than all the breaths that follow. If it were not for a surfactant produced from 28 weeks onwards, the damp walls of our air sacs would stick together when that first breath is exhaled.

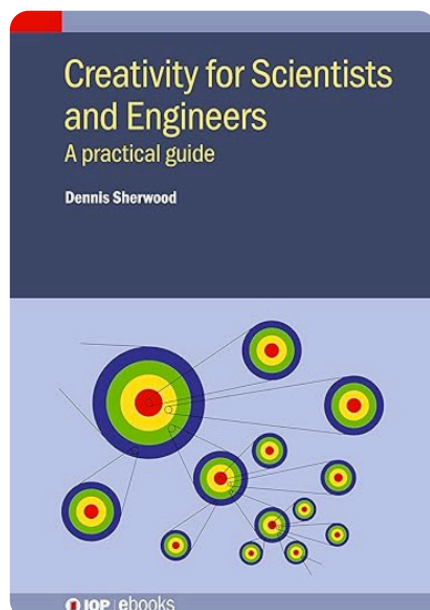
'Anaesthesia' is my favourite chapter. It covers the history of modern anaesthesia, starting with Joseph Priestley's discovery of nitrous oxide ('laughing gas'), still used in the 'gas and air' mixture offered to women during labour. Ether and chloroform follow. I am slightly disappointed that John Snow, one of my

scientific heroes, does not merit a mention. After all, he was anaesthetist to Queen Victoria and developed the discipline while it was in its infancy as well as fathering epidemiology in his search for the cause of cholera. The chapter goes on to discuss the principles of anaesthesia and how it works.

Discussion of the brain later in the book is also very interesting but, because it is unethical to experiment on the brains of living people, medical knowledge of how the brain works has largely been gleaned from the behaviour of those with brain injuries. Of course, because the brain has no neurons capable of sensing pain, it can be operated on without anaesthesia, which some readers may recall was the basis of a gory scene starring Sir Anthony Hopkins as Hannibal Lector in the film *Hannibal*.

Mike Follows

Physics teacher and Head of Junior Science at King Edward's School, Birmingham



Creativity for Scientists and Engineers: A Practical Guide

Dennis Sherwood
Bristol: IOP ebooks, 2022
418 pp. £30.00
ISBN 978 0 75034965 9

All scientists and engineers are creative – you wouldn't be a scientist or engineer if you weren't. But can you be even more creative? Do you know how to develop creativity in those who are less confident? These are questions this book delves into.

The book is a practical guide on how to have good, creative ideas on demand, and is filled with principles, examples and suggestions, which can be used both on an individual level and to improve organisational creativity.

The author, Dennis Sherwood, has another 14 books under his belt (which span from creativity to thermodynamics) and runs the Silver Bullet Machine Manufacturing Company Limited, a company that helps to build creativity in organisations from retailers to universities. As well as this, Dennis Sherwood has a strong scientific background. All of these achievements promise the book has been written by the right man for the job!

The book is aimed predominantly at scientists and engineers and many of the examples and stories are relevant to these fields. However, the principles and practical guides could be applied by anyone. As a teacher of science, I would find this book very useful for my own practice, both to improve my own creativity and to help improve the creativity of my students. Although I would recommend this book for anyone looking to improve their creativity, there is a lot of scientific theory in the book, and someone with no interest in science may struggle to maintain interest in these sections of the book.

The book is organised in a very accessible way. The first section, the prologue, gives examples of creativity in the history of science. The book then moves onto general principles of creativity, focusing on Koestler's law of creativity. Next, the book has a very large section on practical guides and suggestions to improve creativity. This is followed by how to evaluate these ideas and build a creative culture. The book finishes with an epilogue to encourage the reader to try some of the ideas suggested. As well as this, there is a list of further reading that is wonderfully broken up into areas of interest such as historical readings and creativity principles. The book is well referenced, highlighting the book's use of evidence and research to guide the content. The references are given at the end of each chapter, making it very easy for the reader to follow them up.

I thoroughly enjoyed the prologue of this book. I enjoy the history of science anyway, and the story of Kepler's big ideas and resilience is told very well. It gives some key principles a scientist and engineer should have and

is a story that could be broken up and told in the classroom to capture a student's interest.

In part one of the book, Koestler's laws are explained in detail and the short bites of information mean this book can be used for CPD on a personal, group or organisational level, either in small stages or on a larger scale. As a classroom teacher, I think this would be very useful as we are busy every moment of the school day (and beyond) but still giving us that opportunity to improve and reflect on our practice.

The book is full of practical suggestions that are specific enough to be used in practice but also give lots of scope for individuals to personalise them. It helps the reader throughout with a variety of images as well as real-life examples, from the light bulb to the structure of DNA to Leonardo da Vinci; these alone make the book worth a read.

I really enjoyed reading this book and would recommend it to anyone who is interested in creativity in their own practice (as a teacher or otherwise).

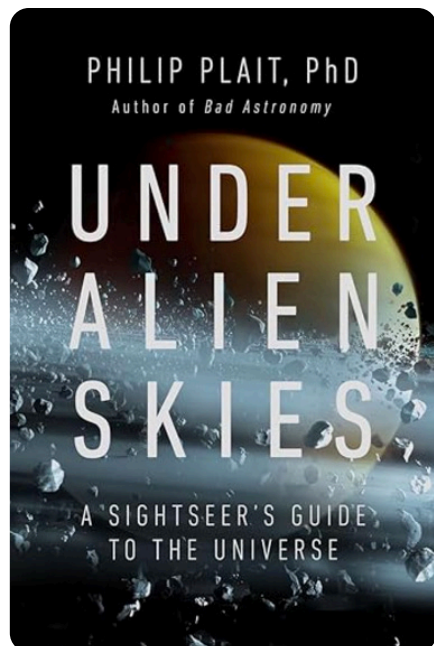
Colette Christian
*Science teacher and
content writer*

Under Alien Skies: A Sightseer's Guide to the Universe

Philip Plait
New York: WW Norton, 2023
311 pp. £23.00
ISBN 978 0 39386730 5

It is nice to be proven correct: a new book by the 'Bad Astronomy' guy, Philip Plait, was surely going to be good.

Dr Plait effortlessly intersperses the sciencey explanations of astronomical observations and phenomena (which are done brilliantly) with travelogue-style



reporting on what it might be like visiting (in person) holiday-brochure destinations of the future, including the Moon, Mars, a comet, Saturn, Pluto, a binary star system, an exoplanet, globular clusters and nebulae (given it may be the 'last sky you'll ever see', black holes are sensibly saved until last).

While there is an element of the adage about nuclear fusion (always) being 30 years away, surely some of our youngest students, before their time is out, can enjoy being a space tourist to (relatively near) off-Earth worlds? For the extra-solar adventures imagined, we are invited to grant the artistic licence enabling light-speed travel for our travellers required for the trip to take less than human lifetimes. It is thoroughly worth playing along with this suspension of disbelief.

Vivid Instagrammable scenes are painted for the reader, but also described are less obvious experiences, imagining, for example, how clumsy one would be at first, trying to adapt to locomotion on a low-gravity body. Or, if on a planet orbiting a binary (or more) star system, checking out a *sundial* with its two (or more) shadows – representing a most impressive

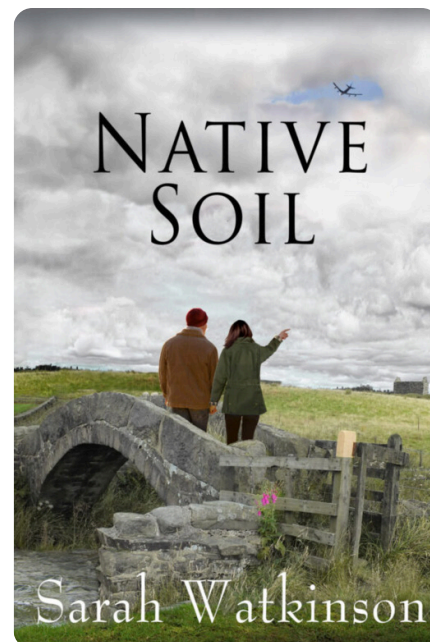
stereo upgrade on the mono sundial back on Earth.

The target readers are not at home with the metric system, and numerical data in the book is certainly plentiful, so unfortunately we are saddled with units like inches, feet, miles, Fahrenheit, pounds, and so on. A European edition of the book would be just perfect. But, to be fair to Dr Plait, his nerdy asides about sci-fi movies and wry humour should suit most British readers (for example his anecdote about being able to score high in a game of *Scrabble* with the word 'syzygy', meaning when three objects are aligned in space). And learning that protoplanetary disks are referred to by the professionals as 'proplyds' gives me something I hope to casually drop into conversation with an astronomer one day.

For a physics teacher, the direct relevance of this for the usual taught exam courses is admittedly slight – most likely at secondary level, for GCSE astronomy or the astrophysics components of A-level physics or AQA's optional topic. The related exam specifications feel like museum pieces from a much earlier age. But looking at the wider picture, the 'awe and wonder' aspect can remind us why many teachers (and a sizeable number of our students) 'got into' science. There's a good chance that some of our students will contribute future knowledge, in a field where each drop of terabytes of data could enable a discovery that inevitably throws up myriad further questions. In an infinite universe, they would certainly have jobs for life (and perhaps opportunities moonlighting in the future space tourist business).

Ian Francis

Physics teacher and examiner



Native Soil

Sarah Watkinson
Moore & Weinberg, 2023
305 pp. £16.99
ISBN 979 8 9854286 3 6

As a teacher and science educator, I continually find myself wanting to expand my scientific knowledge as well as enjoy down time by 'switching off' with a fiction book. There is barely time to do one of these things during term time, never mind both. *Native Soil* claims to do both, however, so I was very intrigued to get my hands on a copy to review.

This a romantic fiction book, set in various parts of England. The story begins with a young woman who buys a farm to make a new start after being left a widow. She meets a celebrity scientist there and a romance follows. As their relationship develops, there are issues such as his travelling the globe with work and her managing the farm, as well as the worried opinions from friends and family that leave us wondering how the story will end. Now, I certainly didn't think I would be writing a review of a romantic novel for SSR! What is so interesting about this book is that its purpose to entertain is entwined with its

purpose to teach. Throughout the book there are references to many biological disciplines, including bioinformatics, microbiology and soil biology. Sarah Watkinson is a long-established plant scientist from the University of Oxford. Her previous publications include poetry, scientific journal articles and scientific books. The author's previous roles and talents are evident throughout this story as her life experience and knowledge certainly influence the story's context. I really enjoyed the story. I am a sucker for a romance novel, so this was right up my street; it is well written and has an intriguing plot. The scientific elements help give the storyline some substance, rather than it just being another

romance. A large part of the story is set in the Yorkshire Dales (as well as Oxfordshire and Northumberland) and so, as a northerner, I enjoyed the northern references throughout. As a biologist, I found that in terms of 'new knowledge' there wasn't a lot for me, but I did learn about soil science and field sampling in a way that wasn't boring! The other science was well explained so that a lay reader could understand, and a scientist wouldn't skip through. As a teacher, it made me wonder whether I could incorporate methods of storytelling into my teaching. Could I use a fiction story to hook students so that they were learning science at the same time? I am not sure I have the creative skills to do so, but it is a challenge I will consider.

As well as the countryside, the book is also set at academic institutions, which gives the reader a feeling of being on the 'inside' of that environment. Overall, this was a pleasure to read and review. As a scientist enjoying a fiction read, it had an excellent balance of fiction and non-fiction elements. I would recommend this book for inspiration as a teacher on how to deliver content, but also to enjoy and maybe learn something new! I also will recommend this book to my older students who enjoy reading (and hopefully they will incidentally learn something too!).

Colette Christian
*Science teacher and content
writer*

SHARE YOUR CONFERENCE EXPERIENCES WITH OTHERS!

Did you attend an inspirational session at the 2024 ASE Annual Conference that gave you an idea to try out in your classroom? Would you like to write something in *SSR in Practice* to share how you have included the idea in your classroom practice? Contact our SSR Commissioning Editor, Helen Harden, on helenhardenase@gmail.com to find out how!

