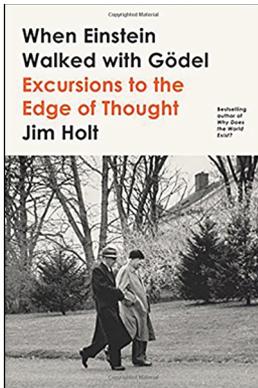




BOOKSHELF

New and Noteworthy Titles on our Bookshelf
February 2019



When Einstein Walked with Gödel: Excursions to the Edge of Thought
by Jim Holt (Farrar, Straus and Giroux, 2018, 384 pages).

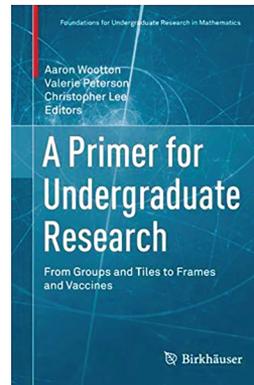
This book is a collection of 24 essays on mathematics, science, and philosophy, each around 10 pages, and 15 short essays, each a page or two in length. The author will be familiar to many readers, since he has written many math- and science-related pieces for a

number of popular outlets such as the *New York Times* and *The New Yorker*.

The essays were written over the course of the past 20 years and are spread out over nine chapters. Four of the first five focus on mathematics and proceed in a largely non-technical and humanistic fashion. The eponymous essay concerns the conversations, debates, and discussions between two giants: Einstein and Gödel. The titles of the individual essays convey the general approach; for example, "Sir Francis Galton, the Father of Statistics...and Eugenics," "Worshipping Infinity: Why the Russians Do and the French Don't." Even those readers who are familiar with the mathematics will learn a thing or two about the characters and stories behind the theorems. Later sections concern the foundations of computer science, cosmology, and philosophy.

It must be said that Holt has strong opinions and not every reader will agree with everything that he says. Platonists and the deeply religious will grimace at the lines "I think that prime numbers will lose their transcendental reputation when we come to understand them more completely. Then we will see that like the rest of mathematics (or like religion, for that matter) they are man-made, a terrestrial artifact" (p.48). He also takes a dim view of Ada

Lovelace's abilities and praises a biographer who "deftly contrasted the grandiosity of Ada's aspirations with the modesty of her gifts and the slimness of her output" (p.178). However, whether one agrees with Holt or not, it must be admitted that he writes with lucidity and style.



A Primer for Undergraduate Research: From Groups and Tiles to Frames and Vaccines
edited by Aaron Wootton, Valerie Peterson, Christopher Lee (Birkhauser, 2017, 313 pages).

This volume consists of 11 self-contained introductory articles on various topics in pure and applied mathematics, although the content leans somewhat more toward the pure side. For example, there

are articles on Coxeter groups, graph coloring, matroids, and Lie theory, along with introductions to vaccination strategies and mathematical decision-making.

Each article begins with a list of suggested prerequisites. As befits the book's intent, these prerequisites are minimal, with group theory being among the most advanced topics required. Suggested research problems and warm-up exercises are provided for each topic, and there are many useful figures, including some in color. The pieces themselves are inviting and compete for the reader's attention. Professors seeking jumping-off points for student research projects will find many good ideas here.

This primer is the first title in Birkhauser's new "Foundations for Undergraduate Research in Mathematics" book series. At least two more titles are in the pipeline. One concerns undergraduate research in computational and mathematical biology. The second is a project-based guide about starting and sustaining accessible undergraduate research.

The Bookshelf is prepared monthly by Notices Associate Editor Stephan Ramon Garcia.

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