

who had access to UK security files, also folds in context that includes the innate uncertainties of intelligence-gathering and the political atmosphere in which it operated, and clear descriptions of the physics Fuchs leaked. In particular, he details the spy's unlikely evasion of detection during security screenings at both Harwell and the Manhattan Project, facilitated by years of intelligence misjudgements and screw-ups. Afterwards, MI5 and the FBI blamed each other for their oversights. Then, with the blessings of Hoover and MI5 director Percy Sillitoe, they agreed to cover for each other.

### NAIVE REASONING

By framing Fuchs's career with the story of his humane mentor Peierls, *Trinity* reveals a man familiar with betrayal, with motives he thought were pure. Fuchs was not paid. He had great faith in communism and, by helping the Soviet Union, hoped to return Germany to a socialist ideal. After the arrest, Peierls asked of Fuchs whether he believed the Soviet system was superior. He replied that after the Soviets had

**“Trinity reveals a man familiar with betrayal, with motives he thought were pure.”**

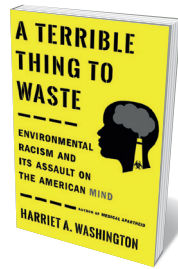
“taken over everything”, he would expose their system's flaws. Peierls hadn't realized Fuchs was so naive, “as if he expected to get away with it”.

And, in a way, he did. He was tried and sentenced to 14 years in prison — first at Wormwood Scrubs in London, then Wakefield. The fallout from his arrest included the convictions of fellow spies in the United States: David Greenglass, who was sentenced to prison, and Julius and Ethel Rosenberg, who were executed. Fuchs was spared a death sentence because the Soviet Union was an ally when he began spying for it. He served nine years, then moved to East Germany, where he worked at the Central Institute for Nuclear Research in Dresden. He gained scientific acclaim and survived for another three decades.

*Trinity* gives the impression that Fuchs, a good theoretical physicist and devoted spy, took pride in both. He was certainly effective. Close quotes nuclear-bomb historian Lorna Arnold, who said that the hydrogen bomb's parentage in various countries is in doubt. But, given his work in the United States and Britain and the information he leaked, “I suspect Klaus Fuchs was grandfather to them all”. Close's Fuchs is someone we come to understand, but don't forgive. ■

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## Books in brief



### A Terrible Thing to Waste

Harriet A. Washington LITTLE, BROWN SPARK (2019)

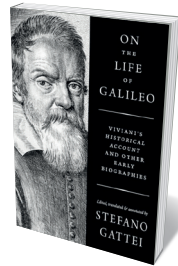
Exposure to lead, mercury and other toxins poses big risks to public health and neural development. And it disproportionately affects people of colour, notably in the United States, where 68% of African Americans (compared with 56% of white people) live within 48 kilometres of a coal-fired power plant. Medical historian Harriet Washington examines how such ‘environmental racism’ holds back lives. Her penetrating study ranges widely over pollutants, pathogens and prenatal care, and lays out pragmatic strategies for countering the malign official neglect underpinning this structural injustice.



### The Case Against Reality

Donald Hoffman W. W. NORTON (2019)

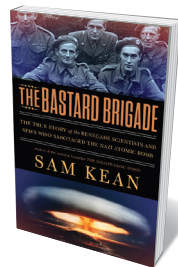
We've been using the wrong language to describe objective reality, asserts cognitive scientist Donald Hoffman. Teapots, trees and speeding cars are not objects in space and time. They are instead akin to icons on a 3D computer desktop — perceptions we need to take “seriously, but not literally”. Hoffman makes his case, predicated on evolutionary fitness rather than metaphysical truth, by way of research into consciousness and the perception of beauty, theories on the doomed nature of space-time, and more. Is reality virtual? It's a question made even more interesting by this book.



### On the Life of Galileo

Edited by Stefano Gattei PRINCETON UNIVERSITY PRESS (2019)

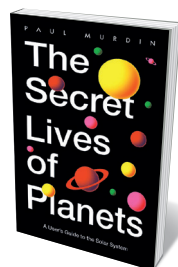
“I was the one who broke Heaven open/before the Sun burned my eyes.” That lyrical portrait of Galileo Galilei (from Primo Levi's 1984 poem ‘Sidereus Nuncius’) opens this fine collected volume of biographies of the astronomer. Works by Galileo's seventeenth-century contemporaries, translated by Stefano Gattei, reveal at first hand the making of his myth in a tumultuous era. Among the eulogies and critiques are the ‘Historical Account’ by mathematician Vincenzo Viviani, Galileo's last pupil, and a poem by Maffeo Barberini, who later, as Pope Urban VIII, ordered Galileo's 1633 heresy trial.



### The Bastard Brigade

Sam Kean LITTLE, BROWN (2019)

Among the Manhattan Project's shadowy remits was the Alsos mission to halt Nazi efforts to build a bomb. Now, Sam Kean's thriller-esque science history gives it top billing. Amid air strikes and commando raids, we meet the unit's scientists and spies, such as quantum pioneer Samuel Goudsmit (see D. Castelvecchi *Nature* **563**, 320–321; 2018) and key German players Werner Heisenberg and Otto Hahn. Kean adds spark by focusing on the Allied effort and less familiar faces in the fray, from spy and baseball player Moe Berg to Nobel-prizewinning chemist Irène Joliot-Curie.



### The Secret Lives of Planets

Paul Murdin HODDER & STOUGHTON (2019)

In this succinct primer on planetary science, astronomer Paul Murdin reminds us that the seemingly static Solar System is a hotbed of upheaval, shaping fascinating worlds for 4 billion years. Along with our cosmic neighbourhood's eight planets, Murdin surveys dwarf planets Pluto and Ceres, and a selection of asteroids, meteoroids and satellites. We learn that Venus is festooned with clouds of sulfuric acid; that Saturn's more than 60 moons ‘shepherd’ the particles in its rings; and that one of those moons, Enceladus, spits gas that falls back to its surface as snow. A deft, frequently dramatic tour. **Barbara Kiser**