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were almost always right, says Calinger.

At the centre of analysis, Euler placed the concept of differential equations: those that link a function and its derivatives, and in which the solution consists of calculating the function itself. (In celestial mechanics, for example, the functions can represent the trajectories of planets.) He came to be regarded as the "principal inventor" of the field, Calinger writes, and his work on analysis "displaced synthetic Euclidean geometry from its two-millennium primacy".

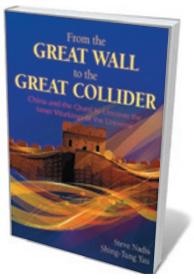
Euler demonstrated the power of this innovative science when he applied it to physical problems, such as the laws of the mechanics of solid bodies. In particular, he solved what many in the eighteenth century considered the most important open problem in astronomy: reconciling the complex motions of the Moon with Newton's universal law of gravitation. This 'three-body problem' involves the interactions of the Sun, Moon and Earth, and is much harder than predicting one planet's motion around the Sun. Some, including Euler, had suspected that Newton's inverse-square law would break down in this crucial test, demanding the formulation of another theory. The problem had enormous practical importance: lunar motions could be used to calculate a vessel's longitude at sea, and Euler was in the race to find a reliable method of doing so. (Eventually, precise timekeeping turned out to be a better solution.)

I have one quibble. The book's strict chronological order means that it often reads as a sequence of disconnected summaries of Euler's papers and correspondence, jumping from fundamental problems in algebra to ordering ink for his academy's printing presses, often in the same paragraph. Still, fragmented as the narrative is, we manage to glimpse a personality. He was a man of integrity who — with few exceptions — gave credit where it was due and maintained a belief in "a harmony between written revelation and natural phenomena". And although Calinger remarks on Euler's perceived lack of "courtly manners", we infer that this was really just a dearth of interest in flattering the nobility.

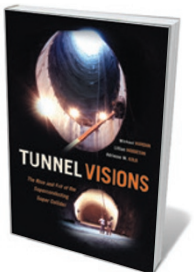
As a result, Euler never became head of the academies at which he worked, in Frederick the Great's Berlin or Catherine the Great's St Petersburg. No matter: his importance in the evolution of mathematics is clear. This impressively researched tome will be of great value to anyone with a serious interest in the history of mathematics and the Enlightenment. ■

Davide Castelvecchi *is senior reporter on the physical sciences at* Nature.

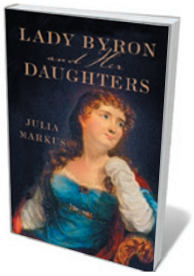
Books in brief



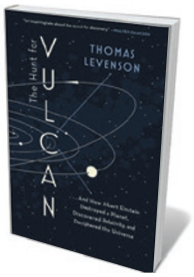
From the Great Wall to the Great Collider: China and the Quest to Uncover the Inner Workings of the Universe
Steve Nadis and Shing-Tung Yau INTERNATIONAL PRESS OF BOSTON *(2015)*
The Large Hadron Collider (LHC) at Europe's particle-physics lab, CERN, has witnessed game-changing discoveries, not least the Higgs boson in 2012. Now, rival ideas for successors are evolving (see *Nature* **511,** 394–395; 2014). In this forcefully argued history-cum-manifesto, physicist Shing-Tung Yau and writer Steve Nadis make the case for a "Great Collider" 100 kilometres in circumference to be built in China — an engineering marvel on a par with the Great Wall, but designed to lure hordes in for "rousing research collaboration".



Tunnel Visions: The Rise and Fall of the Superconducting Super Collider
Michael Riordan, Lillian Hoddeson and Adrienne W. Kolb UNIVERSITY OF CHICAGO PRESS *(2015)*
The termination of the Superconducting Super Collider project in 1993 sent more than US$10 billion down the drain and left the US high-energy-physics community reeling. In this in-depth tome on that "epochal transition", science historians Michael Riordan and Lillian Hoddeson, with Fermilab archivist Adrienne Kolb, cover all the bases leading to that bitter end — which, they conclude, was down to a "cold-war mindset" and the untenable cost of going it alone.



Lady Byron and Her Daughters
Julia Markus W. W. NORTON *(2015)*
In the bicentenary of computer pioneer Ada Lovelace (R. Holmes *Nature* **525,** 30–32; 2015), it is salutary to remember her brilliant mother Annabella, estranged wife of volatile poet Lord Byron. Dubbed by him the "princess of parallelograms", Annabella was a talented mathematician — but also a radical educational and social reformer, as Julia Markus reveals in this lucid biography. Annabella's abolitionism sparked the admiration of Harriet Beecher Stowe, author of *Uncle Tom's Cabin* (1852), who launched a fiery feminist defence of her in the face of virulent criticism from Byron's hagiographers.



The Hunt for Vulcan
Thomas Levenson RANDOM HOUSE *(2015)*
A science-fiction flavour clings to this real history of a nonexistent planet that sneaked into the annals of science, and the scientific icon who ushered it out again. Thomas Levenson wonderfully tells the story of Vulcan — the planet hypothesized (and 'observed') around 1860 to explain a wobble in Mercury's orbit — as a frame for Albert Einstein's general theory of relativity, which killed the putative planet stone dead. Looping through science history from Isaac Newton onwards, Levenson elegantly reveals the evolutionary nature of scientific thought, and the marvel of the revolution that Einstein wrought.

We Are All Stardust
Stefan Klein, translated by Ross Benjamin EXPERIMENT *(2015)*
The dazzling clutch of scientific minds caught in mid-thought here makes for a read that provokes thought in its turn. Translated from German for the first time, this collection sees science writer Stefan Klein interview the likes of anthropologist Sarah Hrdy and astronomer Martin Rees. Delights abound. Rees uses the analogy of a department store to illustrate the emergence of life in a multiverse, while psychologist Alison Gopnik likens the intensity of babyhood to a first-time trip to Paris, revved up on Gauloises and espresso. **Barbara Kiser**

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