David R. Topper

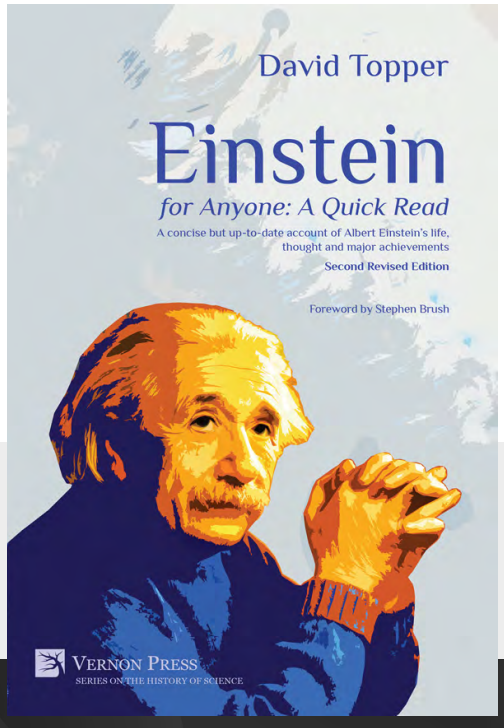
Einstein for Anyone: A Quick Read

A concise but up-to-date account of Albert Einstein's life, thought and major achievements

SERIES ON THE HISTORY OF SCIENCE

About the author

David R. Topper, Professor of History at the University of Winnipeg (retired, June 2012), from 1970 taught courses in the history of science and the history of art. He was the recipient of two teaching awards: the Robson Memorial Award for Excellence in Teaching at the University of Winnipeg (1981), and the National 3M Teaching Fellowship (1987). He previously published three books: Quirky Sides of Scientists: True Tales of Ingenuity and Error from Physics and Astronomy (Springer, 2007), How Einstein Created Relativity from Physics and Astronomy (Springer, 2013), and Idolatry and Infinity: Of Art, Math, and God (Brown Walker, 2014). For reviews see: www.davidrtopper.com



Summary

This book seeks to fill a gap: the need for a very short book on Albert Einstein that gives a brief but up-to-date story of his life and thoughts, with a short and simple explanation of what he contributed to 20th century physics. Here is the compact story of this famous scientist, from the smiling contrarian in his grade school picture to the nonconformist adult who refused to groom his hair.

There is a chapter on his habitually thorny relationships with women and close relatives: his first love, his two wives, his parents and his children – none of which was a painless union. The birth of an illegitimate daughter, the estrangement of his sons after the divorce from his first wife, his ever controlling mother – all had a profound psychological effect on Einstein's personality.

Another chapter focuses on the young Jew struggling with his self-identify, who in adulthood was unwaveringly committed to social justice and democratic principles that he believed were rooted in Jewish ethical values. It started with his early flirtation with Orthodox Judaism, only to be vehemently rejected later when he became a science-obsessed teenager. His exposure to latent and overt anti-Semitism when he moved to Germany in 1914 led to his subsequent espousal (with misgivings) of the Zionist movement. When he moved to the USA in 1933 fleeing Nazi Germany, he was confronted with the endemic racism against African-Americans, an issue he spoke-out boldly against, as a supporter of the burgeoning civil rights movement. This work ignited the ire of FBI Director J. Edgar Hoover, who had already opened a file on Einstein in 1932, because of his pacifist activities in Germany. When he moved to America, Hoover suspected him of being a Communist spy.

Finally, there is the scientist who expressed his ideals through his radical ideas about the physical world, as he reworked our conceptions of space, time, and motion. The result was a new cosmic model of the universe that is still being developed further today. His commitment to an ordered and predictable universe was ultimately expressed in his final (but still unfulfilled) quest for a theory that unifies the forces of nature, what he called his unified field theory.

Some non-scientific topics, not often found in biographies of Einstein (even the hefty tomes):

- A serious consideration of his extensive ruminations on matters of politics and society.
- His social efforts for the plight of Eastern European Jews after World War I, and the later work for refugees from Nazi Germany trying to immigrate to the USA.
- A look at his close friendship with the African-American singer Paul Robeson, and others committed to civil rights.
- The story of his acceptance and reception of an honorary degree from Lincoln University in May, 1946, the first all-black college in America.
- His confrontation with the anti-Communist movement during the McCarthy era (especially Hoover and the FBI).
- The key role the ideas of the 17th century Jewish philosopher Spinoza had on both Einstein's theology and his scientific thinking.

Some of the highlights of Einstein's scientific pursuits found in this book:

- A clear explanation, with helpful diagrams, of Einstein's famous "thought experiments."
- The importance for Einstein of the interplay between theory and experiment in physics, as well as his practical side with real world technology.
- His vacillation with and ultimate embrace of the role of abstract mathematics in his theory of relativity.
- A clear explanation of the differences between Newton's and Einstein's ideas about gravity.
- A non-technical account of the difference between Einstein's and Bohr's interpretations of quantum physics.
- Perhaps the first elucidation for the layperson of Einstein's obsession with and eventual abandonment of what he called Mach's Principle.
- How Einstein's stubbornness (or chutzpah) both helped and hindered his endeavors in science.
- A consideration of why he alone endlessly pursued his quest for a unified field theory.
- The little known story of the Einstein-deHaas Effect.
- The contrast in his later years between the public's perception of Einstein the sage and icon of science with that of his fellow scientists, who generally saw him as an old fool chasing a pipedream.
- Finally, the most recent confirmation of another of his predictions: the detection of gravitational waves, announced in February 2016.

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