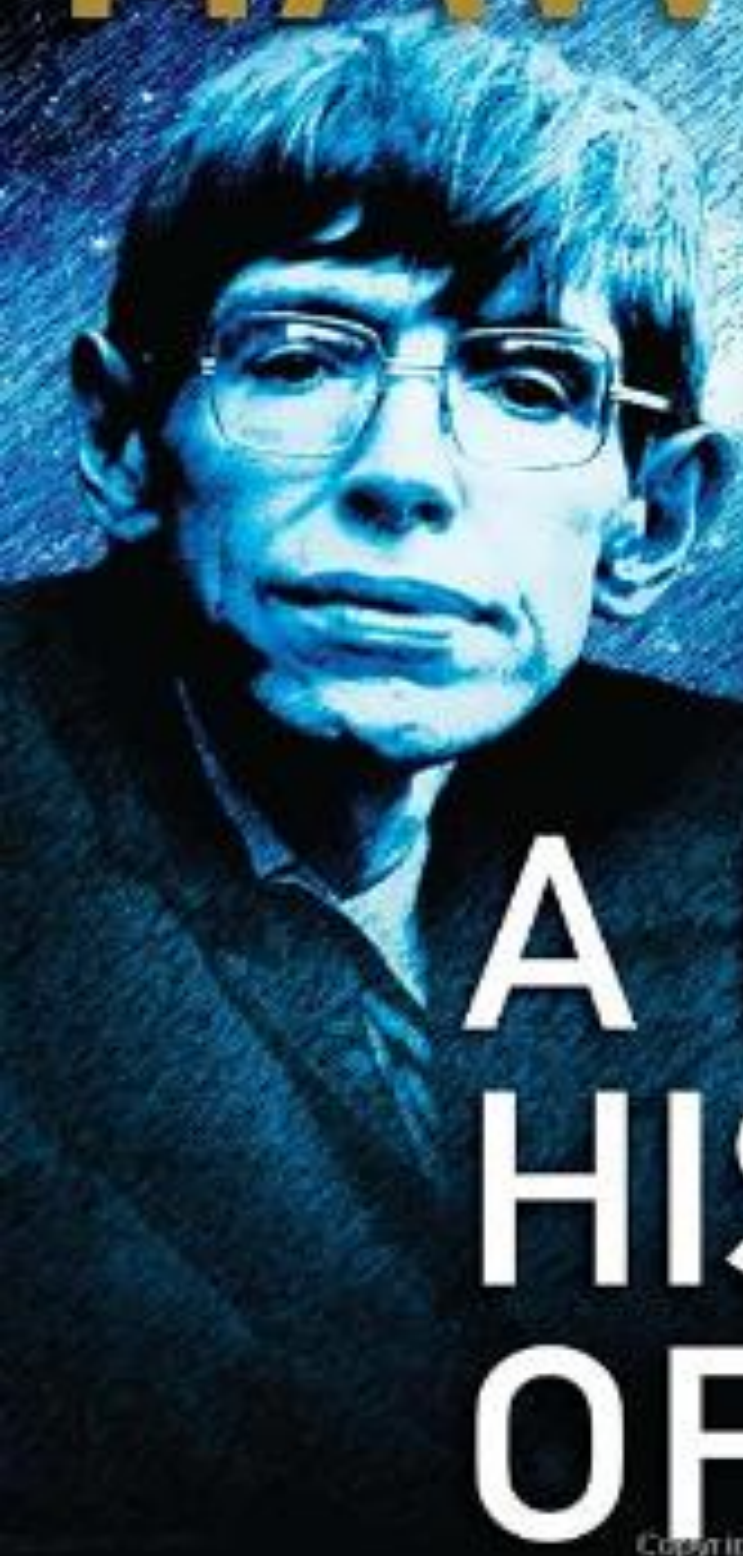
#1 NEW YORK TIMES BESTSELLER

STEPHEN HAWKING



"[Hawking] can explain the complexities of cosmological physics with an engaging combination of clarity and wit. . . . His is a brain of extraordinary power."

—*The New York Review of Books*

A BRIEF HISTORY OF TIME

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UPDATED AND EXPANDED
TENTH ANNIVERSARY EDITION

STEPHEN HAWKING

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C O N T E N T S

CHAPTER 1

OUR PICTURE OF THE UNIVERSE

A well-known scientist (some say it was Bertrand Russell) once gave a public lecture on astronomy. He described how the earth orbits around the sun and how the sun, in turn, orbits around the center of a vast collection of stars called our galaxy. At the end of the lecture, a little old lady at the back of the room got up and said: "What you have told us is rubbish. The world is really a flat plate supported on the back of a giant tortoise." The scientist gave a superior smile before replying, "What is the tortoise standing on?" "You're very clever, young man, very clever," said the old lady. "But it's turtles all the way down!"

Most people would find the picture of our universe as an infinite tower of tortoises rather ridiculous, but why do we think we know better? What do we know about the universe, and how do we know it? Where did the universe come from, and where is it going? Did the universe have a beginning, and if so, what happened *before* then? What is the nature of time? Will it ever come to an end? Can we go back in time? Recent breakthroughs in physics, made possible in part by