

The Beginning Of Infinity Explanations That Transform The World

“A philosophical look at the history of our species which alternated between fascinating and frightening . . . like reading Dean Koontz or Stephen King.” —Rocky Mountain News **The Lucifer Principle** is a revolutionary work that explores the intricate relationships among genetics, human behavior, and culture to put forth the thesis that “evil” is a by-product of nature’s strategies for creation and that it is woven into our most basic biological fabric. In a sweeping narrative that moves lucidly among sophisticated scientific disciplines and covers the entire span of the earth’s—as well as mankind’s—history, **Howard Bloom** challenges some of our most popular scientific assumptions. Drawing on evidence from studies of the most primitive organisms to those on ants, apes, and humankind, the author makes a persuasive case that it is the group, or “superorganism,” rather than the lone individual that really matters in the evolutionary struggle. But biology is not destiny, and human culture is not always the buffer to our most primitive instincts we would like to think it is. In these complex threads of thought lies the Lucifer Principle, and only through understanding its mandates will we able to avoid the nuclear crusades that await us in the twenty-first century. “A revolutionary vision of the relationship between psychology and history, **The Lucifer Principle** will have a profound impact on our concepts of human nature. It is astonishing that a book of such importance could be such a pleasure to read.”—Elizabeth F. Loftus, author of **Memory**

NEW YORK TIMES BESTSELLER • A captivating exploration of deep time and humanity’s search for purpose, from the world-renowned physicist and best-selling author of The Elegant Universe. "Few humans share Greene’s mastery of both the latest cosmological science and English prose." —The New York Times **Until the End of Time** is Brian Greene's breathtaking new exploration of the cosmos and our quest to find meaning in the face of this vast expanse. Greene takes us on a journey from the big bang to the end of time, exploring how lasting structures formed, how life and mind emerged, and how we grapple with our existence through narrative, myth, religion, creative expression, science, the quest for truth, and a deep longing for the eternal. From particles to planets, consciousness to creativity, matter to meaning—Brian Greene allows us all to grasp and appreciate our fleeting but utterly exquisite moment in the cosmos.

A life strategy guide by the creator of the Spartan Race explains how the principles that bring about success in an extreme sports environment can help anyone achieve his or her full potential in life, business, and relationships.

How the new conspiracists are undermining democracy—and what can be done about it **Conspiracy theories** are as old as politics. But conspiracists today have introduced something new—conspiracy without theory. And the new conspiracism has moved from the fringes to the heart of government with the election of Donald Trump. In **A Lot of People Are Saying**, Russell Muirhead and Nancy Rosenblum show how the new conspiracism differs from classic conspiracy theory, how it undermines democracy, and what needs to be done to resist it.

Ignited Minds

The Myth of the Framework

Frank Oppenheimer and His Astonishing Exploratorium

Until the End of Time

Cosmic Inflation and the Beginning of the Universe

The Science and Philosophy of the Infinite

Finite and Infinite Games

An extraordinary and challenging synthesis of ideas uniting Quantum Theory, and the theories of Computation, Knowledge and Evolution, Deutsch's extraordinary book explores the deep connections between these strands which reveal the fabric of realityin which human actions and ideas play essential roles.

“The man who makes physics sexy . . . the scientist they’re calling the next Stephen Hawking.” —The Times Magazine From the New York Times–bestselling author of Seven Brief Lessons on Physics, The Order of Time, and the forthcoming Helgoland, a closer look at the mind-bending nature of the universe. What are the elementary ingredients of the world? Do time and space exist? And what exactly is reality? In elegant and accessible prose, theoretical physicist Carlo Rovelli leads us on a wondrous journey from Democritus to Einstein, from Michael Faraday to gravitational waves, and from classical physics to his own work in quantum gravity. As he shows us how the idea of reality has evolved over time, Rovelli offers deeper explanations of the theories he introduced so concisely in Seven Brief Lessons on Physics. Rovelli invites us to imagine a marvelous world where space breaks up into tiny grains, time disappears at the smallest scales, and black holes are waiting to explode—a vast universe still largely undiscovered.

A bold and all-embracing exploration of the nature and progress of knowledge from one of today’s great thinkers. Throughout history, mankind has struggled to understand life’s mysteries, from the mundane to the seemingly miraculous. In this important new book, David Deutsch, an award-winning pioneer in the field of quantum computation, argues that explanations have a fundamental place in the universe. They have unlimited scope and power to cause change, and the quest to improve them is the basic regulating principle not only of science but of all successful human endeavor. This stream of ever improving explanations has infinite reach, according to Deutsch: we are subject only to the laws of physics, and they impose no upper boundary to what we can eventually understand, control, and achieve. In his previous book, The Fabric of Reality, Deutsch describe the four deepest strands of existing knowledge—the theories of evolution, quantum physics, knowledge, and computation—arguing jointly they reveal a unified fabric of reality. In this new book, he applies that worldview to a wide range of issues and unsolved problems, from creativity and free will to the origin and future of the human species. Filled with startling new conclusions about human choice, optimism, scientific explanation, and the evolution of culture, *The Beginning of Infinity* is a groundbreaking book that will become a classic of its kind.

An original, endlessly thought-provoking, and controversial look at the nature of consciousness and identity argues that the key to understanding selves and consciousness is the "strange loop," a special kind of abstract feedback loop inhabiting our brains.

How Great Founders Do More with Less

Theory and Reality

Lawrence in Arabia

A New Theory of How We Think

Explanations that Transform the World

Reality Is Not What It Seems

The Fabric of Reality

Learn how quantum physics affects your daily life and discover practical ways to put that knowledge to good use! Ever wonder why you always seem to seek the easiest and shortest way to accomplish something? And why is it

Cole—a friend and colleague of Frank Oppenheimer’s for many years—has drawn from letters, documents, and extensive interviews to write a very personal story of the man whose irrepressible spirit would inspire so many.

SHORTLISTED FOR THE 2017 ROYAL SOCIETY SCIENCE BOOK PRIZE Even small children know there are infinitely many whole numbers - start counting and you'll never reach the end. But there are also infinitely many decimal numbers between zero and one. Are these two types of infinity the same? Are they larger or smaller than each other? Can we even talk about 'larger' and 'smaller' when we talk about infinity? In *Beyond Infinity*, international maths sensation Eugenia Cheng reveals the inner workings of infinity. What happens when a new guest arrives at your infinite hotel - but you already have an infinite number of guests? How does infinity give Zeno’s tortoise the edge in a paradoxical foot-race with Achilles? And can we really make an infinite number of cookies from a finite amount of cookie dough? Welding an armoury of inventive, intuitive metaphor, Cheng draws beginners and enthusiasts alike into the heart of this mysterious, powerful concept to reveal fundamental truths about mathematics, all the way from the infinitely large down to the infinitely small.

Want more free books like this? Download our app for free at https://www.QuickRead.com/App and get access to hundreds of free book and audiobook summaries. The Beginning of Infinity invites readers to explore the evolution of scientific thought through a critical study of the human search for knowledge as articulated by leading physicist David Deutsch. Physicist David Deutsch posits that all progress-- whether linguistic, scientific, or philosophical in nature-- stems from the marvelous and persistent human quest for knowledge. Taking readers on a journey through the boundless depths of human creativity, Deutsch explores the concept of knowledge as “the beginning of infinity.”

World War II

The Enlightened Perspective

The Quest to Think the Unthinkable

A Concise Guide from Beginning to End

Infinity and the Mind

The Quantum Guide to Life

Infinity and Me

Max Tegmark leads us on an astonishing journey through past, present and future, and through the physics, astronomy and mathematics that are the foundation of his work, most particularly his hypothesis that our physical reality is a mathematical structure and his theory of the ultimate multiverse. In a dazzling combination of both popular and groundbreaking science, he not only helps us grasp his often mind-boggling theories, but he also shares with us some of the often surprising triumphs and disappointments that have shaped his life as a scientist. Fascinating from first to last—this is a book that has already prompted the attention and admiration of some of the most prominent scientists and mathematicians.

'Space is big. Really big. You just won't believe how vastly, hugely, mind-bogglingly big it is. I mean, you may think it's a long way down the street to the chemist, but that's just peanuts to space.' Douglas Adams, *Hitch-hiker's Guide to the Galaxy* *We human beings have trouble with infinity – yet infinity is a surprisingly human subject. Philosophers and mathematicians have gone mad contemplating its nature and complexity – yet it is a concept routinely used by schoolchildren. Exploring the infinite is a journey into paradox. Here is a quantity that turns arithmetic on its head, making it feasible that 1 = 0. Here is a concept that enables us to cram as many extra guests as we like into an already full hotel. Most bizarrely of all, it is quite easy to show that there must be something bigger than infinity – when it surely should be the biggest thing that could possibly be. Brian Clegg takes us on a fascinating tour of that borderland between the extremely large and the ultimate that takes us from Archimedes, counting the grains of sand that would fill the universe, to the latest theories on the physical reality of the infinite. Full of unexpected delights, whether St Augustine contemplating the nature of creation, Newton and Leibniz battling over ownership of calculus, or Cantor struggling to publicise his vision of the transfinite, infinity's fascination is in the way it brings together the everyday and the extraordinary, prosaic daily life and the esoteric. Whether your interest in infinity is mathematical, philosophical, spiritual or just plain curious, this accessible book offers a stimulating and entertaining read.*

The New York Times **bestseller: A provocative, imaginative exploration of the nature and progress of knowledge “Dazzling.” – Steven Pinker, The Guardian *In this groundbreaking book, award-winning physicist David Deutsch argues that explanations have a fundamental place in the universe—and that improving them is the basic regulating principle of all successful human endeavor. Taking us on a journey through every fundamental field of science, as well as the history of civilization, art, moral values, and the theory of political institutions, Deutsch tracks how we form new explanations and drop bad ones, explaining the conditions under which progress—which he argues is potentially boundless—can and cannot happen. Hugely ambitious and highly original, The Beginning of Infinity explores and establishes deep connections between the laws of nature, the human condition, knowledge, and the possibility for progress.***

From Jim Collins, the most influential business thinker of our era, comes an ambitious upgrade of his classic, Beyond Entrepreneurship, that includes all-new findings and world-changing insights. What's the roadmap to create a company that not only survives its infancy but thrives, changing the world for decades to come? Nine years before the publication of his epochal bestseller Good to Great, Jim Collins and his mentor, Bill Lazier, answered this question in their bestselling book, Beyond Entrepreneurship. Beyond Entrepreneurship left a definitive mark on the business community, influencing the young pioneers who were, at that time, creating the technology revolution that was birthing in Silicon Valley. Decades later, successive generations of entrepreneurs still turn to the strategies outlined in Beyond Entrepreneurship to answer the most pressing business questions. BE 2.0 is a new and improved version of the book that Jim Collins and Bill Lazier wrote years ago. In BE 2.0, Jim Collins honors his mentor, Bill Lazier, who passed away in 2005, and reexamines the original text of Beyond Entrepreneurship with his 2020 perspective. The book includes the original text of Beyond Entrepreneurship, as well as four new chapters and fifteen new essays. BE 2.0 pulls together the key concepts across Collins' thirty years of research into one integrated framework called The Map. The result is a singular reading experience, which presents a unified vision of company creation that will fascinate not only Jim's millions of dedicated readers worldwide, but also introduce a new generation to his remarkable work.

An expedition to the outer limits of the mathematical universe

Decoding Reality

A Physicist's Journey through the Land of Counterfactuals

A Beautiful Question

Summary of “The Beginning of Infinity” by David Deutsch – Free book by QuickRead.com

The New Conspiracism and the Assault on Democracy

I Am a Strange Loop

Does the universe embody beautiful ideas? Artists as well as scientists throughout human history have pondered this “beautiful question.” With Nobel laureate Frank Wilczek as your guide, embark on a voyage of related discoveries, from Plato and Pythagoras up to the present. Wilczek’s groundbreaking work in quantum physics was inspired by his intuition to look for a deeper order of beauty in nature. This is the deep logic of the universe—and it is no accident that it is also at the heart of what we find aesthetically pleasing and inspiring. Wilczek is hardly alone among great scientists in charting his course using beauty as his compass. As he reveals in *A Beautiful Question*, this has been the heart of scientific pursuit from Pythagoras and the ancient belief in the music of the spheres to Galileo, Newton, Maxwell, Einstein, and into the deep waters of twentieth-century physics. Wilczek brings us right to the edge of knowledge today, where the core insights of even the craziest quantum ideas apply principles we all understand. The equations for atoms and light are almost the same ones that govern musical instruments and sound; the subatomic particles that are responsible for most of our mass are determined by simple geometric symmetries. Gorgeously illustrated, *A Beautiful Question* is a mind-shifting book that braids the age-old quest for beauty and the age-old quest for truth into a thrilling synthesis. It is a dazzling and important work from one of our best thinkers, whose humor and infectious sense of wonder animate every page. Yes: The world is a work of art, and its deepest truths are ones we already feel, as if they were somehow written in our souls.

A luminous guide to how the radical new science of counterfactuals can reveal that the scope of the universe is greater, and more beautiful, than we ever imagined There is a vast class of things that science has so far almost entirely neglected. They are central to the understanding of physical reality both at an everyday level and at the level of the most fundamental phenomena in physics, yet have traditionally been assumed to be impossible to incorporate into fundamental scientific explanations. They are facts not about what is (the actual) but about what could be (counterfactuals). According to physicist Chiara Marletto, laws about things being possible or impossible may generate an alternative way of providing explanations. This fascinating, far-reaching approach holds promise for revolutionizing the way fundamental physics is formulated and for providing essential tools to face existing technological challenges—from delivering the next generation of information-processing devices beyond the universal quantum computer to designing AIs. Each chapter in the book delineates how an existing vexed open problem in science can be solved by this radically different approach and it is augmented by short fictional stories that explicate the main point of the chapter. As Marletto demonstrates, contemplating what is possible can give us a more complete and hopeful picture of the physical world.

In *Infinity and the Mind*, Rudy Rucker leads an excursion to that stretch of the universe he calls the “Mindscape,” where he explores infinity in all its forms: potential and actual, mathematical and physical, theological and mundane. Rucker acquaints us with Gödel’s rotating universe, in which it is theoretically possible to travel into the past, and explains an interpretation of quantum mechanics in which billions of parallel worlds are produced every microsecond. It is in the realm of infinity, he maintains, that mathematics, science, and logic merge with the fantastic. By closely examining the paradoxes that arise from this merging, we can learn a great deal about the human mind, its powers, and its limitations. Using cartoons, puzzles, and quotations to enliven his text, Rucker guides us through such topics as the paradoxes of set theory, the possibilities of physical infinities, and the results of Gödel’s incompleteness theorems. His personal encounters with Gödel the mathematician and philosopher provide a rare glimpse at genius and reveal what very few mathematicians have dared to admit: the transcendent implications of Platonic realism.

Your selection of this book demonstrates a rare seriousness. You recognize the need to study history, for to ignore it is to repeat it. Yet you also recognize the time constraints imposed by modern life. There is no shortage of massive tomes covering every aspect, even the most trivial, of World War II. Volumes that take months to read and can double as doorstops after you’ve given up in frustration. You have wisely chosen a different route to knowledge about the conflict we now call The Good War: a readable, surprising, fact-filled history that concentrates solely on the characters, countries, and battles that determined the outcome of the war. No filler. No padding. No meandering asides about ultimately unimportant people and events. In *World War II: A Concise Guide* From Beginning to End, you'll discover the reasons for the war's launch, and gain appreciation for the sacrifices made to bring it to a close. Can a history as concise as this one still offer surprises? Oh, yes. Don't believe me? Just turn the page and begin. Surprises await you in the first paragraphs. Think you already know how World War II began? Prepare to be astonished...

Turning Your Business into an Enduring Great Company

An Infinity of Worlds

In Defence of Science and Rationality

Mind, Matter, and Our Search for Meaning in an Evolving Universe

From Eternity to Here

The Beginning of Infinity

An Introduction to the Philosophy of Science, Second Edition

“ There are at least two kinds of games, ” states James Carse as he begins this extraordinary book. “ One could be called finite; the other infinite. ” Finite games are the familiar contests of everyday life; they are played in order to be won, which is when they end. But infinite games are more mysterious. Their object is not winning, but ensuring the continuation of play. The rules may change, the boundaries may change, even the participants may change—as long as the game is never allowed to come to an end. What are infinite games? How do they affect the ways we play our finite games? What are we doing when we play—finitely or infinitely? And how can infinite games affect the ways in which we live our lives? Carse explores these questions with stunning elegance, teasing out of his distinctions a universe of observation and insight, noting where and why and how we play, finitely and infinitely. He surveys our world—from the finite games of the playing field and playing board to the infinite games found in culture and religion—leaving all we think we know illuminated and transformed. Along the way, Carse finds new ways of understanding everything from how an actress portrays a role, to how we engage in sex, from the nature of evil, to the nature of science. Finite games, he shows, may offer wealth and status, power and glory. But infinite games offer something far more subtle and far grander. Carse has written a book rich in insight and aphorism. Already an international literary event, *Finite and Infinite Games* is

certain to be argued about and celebrated for years to come. Reading it is the first step in learning to play the infinite game.

From the author of the New York Times bestseller *The Inevitable*—a sweeping vision of technology as a living force that can expand our individual potential In this provocative book, one of today's most respected thinkers turns the conversation about technology on its head by viewing technology as a natural system, an extension of biological evolution. By mapping the behavior of life, we paradoxically get a glimpse at where technology is headed-or "what it wants." Kevin Kelly offers a dozen trajectories in the coming decades for this near-living system. And as we align ourselves with technology's agenda, we can capture its colossal potential. This visionary and optimistic book explores how technology gives our lives greater meaning and is a must-read for anyone curious about the future.

How does science work? Does it tell us what the world is "really" like? What makes it different from other ways of understanding the universe? In *Theory and Reality*, Peter Godfrey-Smith addresses these questions by taking the reader on a grand tour of more than a hundred years of debate about science. The result is a completely accessible introduction to the main themes of the philosophy of science. Examples and asides engage the beginning student, a glossary of terms explains key concepts, and suggestions for further reading are included at the end of each chapter. Like no other text in this field, *Theory and Reality* combines a survey of recent history of the philosophy of science with current key debates that any beginning scholar or critical reader can follow. The second edition is thoroughly updated and expanded by the author with a new chapter on truth, simplicity, and models in science.

When I looked up, I shivered. How many stars were in the sky? A million? A billion? Maybe the number was as big as infinity. I started to feel very, very small. How could I even think about something as big as infinity? Uma can't help feeling small when she peers up at the night sky. She begins to wonder about infinity. Is infinity a number that grows forever? Is it an endless racetrack?

Could infinity be in an ice cream cone? Uma soon finds that the ways to think about this big idea may just be . . . infinite.

Finding Nature's Deep Design

The Journey to Quantum Gravity

The Phenomenon That Reimagines Space and Time--and What It Means for Black Holes, the Big Bang, and Theories of Everything

A Brief History of Infinity

The Science of Can and Can't

A Scientific Expedition into the Forces of History

Spooky Action at a Distance

In a career spanning sixty years, Sir Karl Popper has made some of the most important contributions to the twentieth century discussion of science and rationality. The *Myth of the Framework* is a new collection of some of Popper's most important material on this subject. Sir Karl discusses such issues as the aims of science, the role that it plays in our civilization, the moral responsibility of the revolution. In doing so, he attacks intellectual fashions (like positivism) that exaggerate what science and rationality have done, as well as intellectual fashions (like relativism) that denigrate what science and rationality can do. Scientific knowledge, according to Popper, is one of the most rational and creative of human achievements, but it is also inherently fallible and subject to revision. In place that he regards both as a theory of knowledge and as an attitude towards human life, human morals and democracy. Published in cooperation with the Central European University.

Anthropic Bias explores how to reason when you suspect that your evidence is biased by "observation selection effects"--that is, evidence that has been filtered by the precondition that there be some suitably positioned observer to "have" the evidence. This conundrum--sometimes alluded to as "the anthropic principle," "self-locating belief," or "indexical information"--turns out to be a surprisingly important implications for many areas in science and philosophy. There are the philosophical thought experiments and paradoxes: the Doomsday Argument; Sleeping Beauty; the Presumptuous Philosopher; Adam & Eve; the Absent-Minded Driver; the Shooting Room. And there are the applications in contemporary science: cosmology ("How many universes are there?"), "Why does the universe appear to evolve of intelligent life on our planet?"); the problem of time's arrow ("Can it be given a thermodynamic explanation?"); quantum physics ("How can the many-worlds theory be tested?"); game-theory problems with imperfect recall ("How to model them?"); even traffic analysis ("Why is the 'next lane' faster?"). Anthropic Bias argues that the same principles are at work across all these domains and selection effects that attempts to meet scientific needs while steering clear of philosophical paradox.

We are programmed from birth to believe that our existence is an unsolvable riddle, but if we make an honest effort, we discover that mystery itself is the riddle. Not just what is the big mystery, but why is there any mystery at all? And what if there isn't? What if the Mysterium Tremendum is just an internal belief without any external counterpart? What if the answers to life's biggest questions can the prisoner reach outside except by thrusting through the wall?" Herman Melville Those interested in striking through the mask will welcome a theory of everything that makes sense, doesn't rely on religious or scientific chicanery, and can be easily understood. And those familiar with Jed McKenna and the Enlightenment Trilogy will know that it's not just a theory.

What is it that we as a nation are missing? Why, given all our skills, resources and talents, do we settle so often for the ordinary instead of striving to be the best? At the heart of Ignited Minds is an irresistible premise: that people do have the power, through hard work, to realize their dream of a truly good life. Kalam's vision document of aspiration and hope motivates us to unleash the dormant

My Quest for the Ultimate Nature of Reality

War, Deceit, Imperial Folly and the Making of the Modern Middle East

What Technology Wants

BE 2.0 (Beyond Entrepreneurship 2.0)

The Universe as Quantum Information

The Quest for the Ultimate Theory of Time

How The Laws Of Physics Explain Our Lives From Laziness To Love

How we arrived in a post-truth era, when "alternative facts" replace actual facts, and feelings have more weight than evidence. Are we living in a post-truth world, where "alternative facts" replace actual facts and feelings have more weight than evidence? How did we get here? In this volume in the MIT Press Essential Knowledge series, Lee McIntyre traces the development of the post-truth phenomenon from science denial through the rise of "fake news," from our psychological blind spots to the public's retreat into "information silos." What, exactly, is post-truth? Is it wishful thinking, political spin, mass delusion, bold-faced lying? McIntyre analyzes recent examples—claims about inauguration crowd size, crime statistics, and the popular vote—and finds that post-truth is an assertion of ideological supremacy by which its practitioners try to compel someone to believe something regardless of the evidence. Yet post-truth didn't begin with the 2016 election; the denial of scientific facts about smoking, evolution, vaccines, and climate change offers a road map for more widespread fact denial. Add to this the wired-in cognitive biases that make us feel that our conclusions are based on good reasoning even when they are not, the decline of traditional media and the rise of social media, and the emergence of fake news as a political tool, and we have the ideal conditions for post-truth. McIntyre also argues provocatively that the right wing borrowed from postmodernism—specifically, the idea that there is no such thing as objective truth—in its attacks on science and facts. McIntyre argues that we can fight post-truth, and that the first step in fighting post-truth is to understand it.

Deutsch, an award-winning pioneer in the field of quantum computation, delivers a bold and all-embracing exploration of the nature and progress of knowledge.

"Pay attention." —Jason Fried A revolutionary roadmap for building startups that go the distance Now more than ever, you don't need a fancy office, Ivy League degree, or millions of dollars in venture capital to launch a business that matters for the communities you care most about. Software, the internet, and remote work have made it possible for entrepreneurs to start for free, make a customer of anyone, and grow a profitable, sustainable company from anywhere. Packed with hard-won, battle-tested lessons from Lavingia's own journey of building Gumroad, a platform for creators to sell their work, *The Minimalist Entrepreneur* teaches founders how to: • start then learn • build a community, then solve a problem for them • charge for something even before you've built anything • avoid running out of money and, more importantly, energy • run a tight ship amid the rise of the gig economy and remote work • own a business without it owing you back. *The Minimalist Entrepreneur* is the manifesto for a new generation of founders who would rather build great companies than big ones. This is essential knowledge for every founder aspiring to build a business worth building.

For a physicist, all the world is information. The Universe and its workings are the ebb and flow of information. We are all transient patterns of information, passing on the recipe for our basic forms to future generations using a four-letter digital code called DNA. In this engaging and mind-stretching account, Vlatko Vedral considers some of the deepest questions about the Universe and considers the implications of interpreting it in terms of information. He explains the nature of information, the idea of entropy, and the roots of this thinking in thermodynamics. He describes the bizarre effects of quantum behaviour — effects such as 'entanglement', which Einstein called 'spooky action at a distance', and explores cutting edge work on harnessing quantum effects in hyperfast quantum computers, and how recent evidence suggests that the weirdness of the quantum world, once thought limited to the tiniest scales, may reach into the macro world. Vedral finishes by considering the answer to the ultimate question: where did all of the information in the Universe come from? The answers he considers are exhilarating, drawing upon the work of distinguished physicist John Wheeler. The ideas challenge our concept of the nature of particles, of time, of determinism, and of reality itself. This edition includes a new foreword from the author, reflecting on changes in the world of quantum information since first publication. Oxford Landmark Science books are 'must-read' classics of modern science writing which have crystallized big ideas, and shaped the way we think.

Post-Truth

A Lot of People Are Saying

Beyond Infinity

Spartan Up!

A Take-No-Prisoners Guide to Overcoming Obstacles and Achieving Peak Performance in Life

Explanations That Transform the World

The Wraparound Universe

"An accessible and engaging exploration of the mysteries of time." -Brian Greene, author of *The Elegant Universe* Twenty years ago, Stephen Hawking tried to explain time by understanding the Big Bang. Now, Sean Carroll says we need to be more ambitious. One of the leading theoretical physicists of his generation, Carroll delivers a dazzling and paradigm-shifting theory of time's arrow that embraces subjects from entropy to quantum mechanics to time travel to information theory and the meaning of life. From Eternity to Here is no less than the next step toward understanding how we came to exist, and a fantastically approachable read that will appeal to a broad audience of armchair physicists, and anyone who ponders the nature of our world.

From biology to culture to the new new economy, the buzzword on everyone's lips is "meme." How do animals learn things? How does human culture evolve? How does viral marketing work? The answer to these disparate questions and even to what is the nature of thought itself is, simply, the meme. For decades researchers have been convinced that memes were *The Next Big Thing* for the understanding of society and ourselves. But no one has so far been able to define what they are. Until now. Here, for the first time, Robert Aunger outlines what a meme physically is, how memes originated, and how they have made our brains into their survival systems. They are thoughts. They are parasites. They are in control. A meme is a distinct pattern of electrical charges in a node in our brains that reproduces a thousand times faster than a bacterium. Memes have found ways to leap from one brain to another. A number of them are being replicated in your brain as you read this paragraph. In 1976 the biologist Richard Dawkins suggested that all animals -- including humans -- are puppets and that genes hold the strings. That is, we are robots serving as life support for the genes that control us. And all they want to do is replicate themselves. But then, we do lots of things that don't seem to help genes replicate. We decide not to have children, we waste our time doing dangerous things like mountain climbing, or boring things like reading, or stupid things like smoking that don't seem to help genes get copied into the next generation. We do all sorts of cultural things for reasons that don't seem to have anything to do with genes. Fashions in sports, books, clothes, ideas, politics, lifestyles come and go and give our lives meaning, so how can we be gene robots? Dawkins recognized that something else was going on. We communicate with one another and we get ideas, and these ideas seem to have a life of their own. Maybe there was something called memes that were like thought genes. Maybe our bodies were gene robots and our minds were meme robots. That would mean that what we think is not the result of our own creativity, but rather the result of the evolutionary flow of memes as they wash through us. What is the biological reality of an idea with a life of its own? What is a thought gene? It's a meme. And no one before Robert Aunger has established what it physically must be. This elegant, paradigm-shifting analysis identifies how memes replicate in our brains, how they evolved, and how they use artifacts like books and photographs and advertisements to get from one brain to another. Destined to inflame arguments about free will, open doors to new ways of sharing our thoughts, and provide a revolutionary explanation of consciousness, *The Electric Meme* will change the way each of us thinks about our minds, our cultures, and our daily choices.

What shape is the universe? Is it curved and closed in on itself? Is it expanding? Where is it headed? Could space be wrapped around itself, such that it produces ghost images of faraway galaxies? Such are the questions posed by Jean-Pierre Luminet in *The Wraparound Universe*, which he then addresses in clear and accessible language. An expert in black holes and the big bang, he leads us on a voyage through the surprising byways of space-time, where possible topologies of the universe, explorations of the infinite, and cosmic mirages combine their mysterious traits and unlock the imagination. *The Wraparound Universe* is a general-audience book about the overall topology or shape of the universe. The central question addressed is whether it is possible that the universe is wrapped around in an interesting way, and what impact this would have on astronomical observations and our understanding of cosmology. Along the way many of the general features and much of the history of the modern picture of cosmology are discussed.

What is space? It isn't a question that most of us normally stop to ask. Space is the venue of physics; it's where things exist, where they move and take shape. Yet over the past few decades, physicists have discovered a phenomenon that operates outside the confines of space and time. The phenomenon-the ability of one particle to affect another instantly across the vastness of space-appears to be almost magical. Einstein grappled with this oddity and couldn't quite resolve it, describing it as "spooky action at a distance." But this strange occurrence has direct connections to black holes, particle collisions, and even the workings of gravity. If space isn't what we thought it was, then what is it?In *Spooky Action at a Distance*, George Musser sets out to answer that question, offering a provocative exploration of nonlocality and a celebration of the scientists who are trying to understand it. Musser guides us on an epic journey of scientific discovery into the lives of experimental physicists observing particles acting in tandem, astronomers discovering galaxies that look statistically identical, and cosmologists hoping to unravel the paradoxes surrounding the big bang. Their conclusions challenge our understanding not only of space and time but of the origins of the universe-and their insights are spurring profound technological innovation and suggesting a new grand unified theory of physics.

The Minimalist Entrepreneur

The Electric Meme

Explanations that Transform The World

Anthropic Bias

The Lucifer Principle

Unleashing the Power within India

Our Mathematical Universe

One of the Best Books of the Year: The Christian Science Monitor NPR The Seattle Times St. Louis Post-Dispatch Chicago Tribune A New York Times Notable Book Finalist for the National Book Critics Circle Award in Biography The Arab Revolt against the Turks in World War I was, in the words of T. E. Lawrence, "a sideshow of a sideshow." As a result, the conflict was shaped to a remarkable degree by a small handful of adventurers and low-level officers far removed from the corridors of power. At the center of it all was Lawrence himself. In early 1914 he was an archaeologist excavating ruins in Syria; by 1917 he was riding into legend at the head of an Arab army as he fought a rearguard action against his own government and its imperial ambitions. Based on four years of intensive primary document research, Lawrence in *Arabia* definitively overturns received wisdom on how the modern Middle East was formed.

What happened before the primordial fire of the Big Bang: a theory about the ultimate origin of the universe. In the beginning was the Big Bang: an unimaginably hot fire almost fourteen billion years ago in which the first elements were forged. The physical theory of the hot nascent universe—the Big Bang—was one of the most consequential developments in twentieth-century science. And yet it leaves many questions unanswered: Why is the universe so big? Why is it so old? What is the origin of structure in the cosmos? In *An Infinity of Worlds*, physicist Will Kinney explains a more recent theory that may hold the answers to these questions and even explain the ultimate origins of the universe: cosmic inflation, before the primordial fire of the Big Bang. Kinney argues that cosmic inflation is a transformational idea in cosmology, changing our picture of the basic structure of the cosmos and raising unavoidable questions about what we mean by a scientific theory. He explains that inflation is a remarkable unification of inner space and outer space, in which the physics of the very large (the cosmos) meets the physics of the very small (elementary particles and fields), closing in a full circle at the first moment of time. With quantum uncertainty its fundamental feature, this new picture of cosmic origins introduces the possibility that the origin of the universe was of a quantum nature. Kinney considers the consequences of eternal cosmic inflation. Can we come to terms with the possibility that our entire observable universe is one of infinitely many, forever hidden from our view?

Jed McKenna's Theory of Everything

Observation Selection Effects in Science and Philosophy

Something Incredibly Wonderful Happens