

Deep Simplicity Bringing Order To Chaos And Complexity John Gribbin

The partisan divide in the United States has widened to a chasm. Legislators vote along party lines and rarely cross the aisle. Political polarization is personal, too—and it is making us miserable. Surveys show that Americans have become more fearful and hateful of supporters of the opposing political party and imagine that they hold much more extreme views than they actually do. We have cordoned ourselves off: we prefer to date and marry those with similar opinions and are less willing to spend time with people on the other side. How can we loosen the grip of this toxic polarization and start working on our most pressing problems? *The Way Out* offers an escape from this morass. The social psychologist Peter T. Coleman explores how conflict resolution and complexity science provide guidance for dealing with seemingly intractable political differences. Deploying the concept of attractors in dynamical systems, he explains why we are stuck in this rut as well as the unexpected ways that deeply rooted oppositions can and do change. Coleman meticulously details principles and practices for navigating and healing the difficult divides in our homes, workplaces, and communities, blending compelling personal accounts from his years of working on entrenched conflicts with lessons from leading-edge research. *The Way Out* is a vital and timely

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guide to breaking free from the cycle of mutual contempt in order to better our lives, relationships, and country.

On 24 June 1837, Louis Agassiz stunned the learned members of the Swiss Society of Natural Sciences by addressing them, in his role as President, not with an anticipated lecture on fossil fishes, but with a passionate presentation on the existence of Ice Ages. No one was convinced. He even dragged the reluctant members of the Society up into the mountains to see the evidence for themselves, pointing out the scars on the hard rocks left by glaciation (which some of those present tried to explain away as having been produced by the wheels of passing carriages). Extraordinarily, it would take a further 140 years before the Ice Age theory was fully proved and understood.

Do we live in a simple or a complex universe? Jack Cohen and Ian Stewart explore the ability of complicated rules to generate simple behaviour in nature through 'the collapse of chaos'. 'The most startling, thought-provoking book I've read all year. I was pleased to learn that most of the things I thought I knew were wrong' -- Terry Pratchett

The World Needs Who You Were Made to Be, the second children's book by New York Times bestselling author Joanna Gaines, illustrated by Julianna Swaney, celebrates how creativity and acceptance can come together to make for a bright and beautiful adventure. The book follows a group of children as they each build their very own hot-air balloons. As the kids work together, leaning into their own skills and processes, to fill the sky with beautiful colors, we discover that the same is true for life--it's more

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beautiful and vibrant when our differences are celebrated. Together with Joanna, you and your kids will take a journey of growth and imagination as you learn in full color that: We should celebrate every child's one-of-a-kind strengths as well as teamwork and acceptance of differences Everything can be made more beautiful when we share our talents and abilities We should lend a helping hand and do our best to take care of one another The World Needs Who You Were Made to Be is a vibrant picture book perfect for: Ages 4-8 Parents, libraries, classroom story times, and discussions about diversity and being a good human being Households that enjoy watching Chip and Joanna on Magnolia Network and HGTV's Fixer Upper With plenty of pink, a bounty of blue, orange and green and yellow too, this vibrant hot-air balloon adventure celebrates every child and teaches kids that we are in this together. "You're one of a kind, and it's so clear to see: The world needs who you were made to be."

Over the past two decades, no field of scientific inquiry has had a more striking impact across a wide array of disciplines—from biology to physics, computing to meteorology—than that known as chaos and complexity, the study of complex systems. Now astrophysicist John Gribbin draws on his expertise to explore, in prose that communicates not only the wonder but the substance of cutting-edge science, the principles behind chaos and complexity. He reveals the remarkable ways these two revolutionary theories have been applied over the last twenty years to explain all sorts of phenomena—from weather patterns to mass extinctions. Grounding these paradigm-

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shifting ideas in their historical context, Gribbin also traces their development from Newton to Darwin to Lorenz, Prigogine, and Lovelock, demonstrating how—far from overturning all that has gone before—chaos and complexity are the triumphant extensions of simple scientific laws. Ultimately, Gribbin illustrates how chaos and complexity permeate the universe on every scale, governing the evolution of life and galaxies alike.

A look at the rebellious thinkers who are challenging old ideas with their insights into the ways countless elements of complex systems interact to produce spontaneous order out of confusion

A concise and engaging investigation of six interpretations of quantum physics. Rules of the quantum world seem to say that a cat can be both alive and dead at the same time and a particle can be in two places at once. And that particle is also a wave; everything in the quantum world can be described in terms of waves—or entirely in terms of particles. These interpretations were all established by the end of the 1920s, by Erwin Schrödinger, Werner Heisenberg, Paul Dirac, and others. But no one has yet come up with a common sense explanation of what is going on. In this concise and engaging book, astrophysicist John Gribbin offers an overview of six of the leading interpretations of quantum mechanics. Gribbin calls his account “agnostic,” explaining that none of these interpretations is any better—or any worse—than any of the others. Gribbin presents the Copenhagen Interpretation, promoted by Niels Bohr and named by

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Heisenberg; the Pilot-Wave Interpretation, developed by Louis de Broglie; the Many Worlds Interpretation (termed “excess baggage” by Gribbin); the Decoherence Interpretation (“incoherent”); the Ensemble “Non-Interpretation”; and the Timeless Transactional Interpretation (which theorized waves going both forward and backward in time). All of these interpretations are crazy, Gribbin warns, and some are more crazy than others—but in the quantum world, being more crazy does not necessarily mean more wrong.

An updated look at black holes chronicles their discovery and formation and offers two known ways for humans to build a time machine using the laws of physics

'Gribbin takes us through the basics with his customary talent for accessibility and clarity' Sunday Times The world around us can be a complex, confusing place.

Earthquakes happen without warning, stock markets fluctuate, weather forecasters seldom seem to get it right - even other people continue to baffle us. How do we make sense of it all? In fact, John Gribbin reveals, our seemingly random universe is actually built on simple laws of cause and effect that can explain why, for example, just one vehicle braking can cause a traffic jam; why wild storms result from a slight atmospheric change; even how we evolved from the most basic materials. Like a zen painting, a fractal image or the pattern on a butterfly's wings, simple elements form the bedrock of a sophisticated whole. Synthesizing chaos and complexity theory for the perplexed, *Deep Simplicity* brilliantly illuminates the harmony underlying our existence.

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Ten laws of simplicity for business, technology, and design that teach us how to need less but get more. Finally, we are learning that simplicity equals sanity. We're rebelling against technology that's too complicated, DVD players with too many menus, and software accompanied by 75-megabyte "read me" manuals. The iPod's clean gadgetry has made simplicity hip. But sometimes we find ourselves caught up in the simplicity paradox: we want something that's simple and easy to use, but also does all the complex things we might ever want it to do. In *The Laws of Simplicity*, John Maeda offers ten laws for balancing simplicity and complexity in business, technology, and design—guidelines for needing less and actually getting more. Maeda—a professor in MIT's Media Lab and a world-renowned graphic designer—explores the question of how we can redefine the notion of "improved" so that it doesn't always mean something more, something added on. Maeda's first law of simplicity is "Reduce." It's not necessarily beneficial to add technology features just because we can. And the features that we do have must be organized (Law 2) in a sensible hierarchy so users aren't distracted by features and functions they don't need. But simplicity is not less just for the sake of less. Skip ahead to Law 9: "Failure: Accept the fact that some things can never be made simple." Maeda's concise guide to simplicity in the digital age shows us how this idea can be a cornerstone of organizations and their products—how it can drive both business and technology. We can learn to simplify without sacrificing comfort and meaning, and we can achieve the balance described in Law 10. This law, which Maeda

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calls "The One," tells us: "Simplicity is about subtracting the obvious, and adding the meaningful."

Filled with the latest astronomical findings and accompanied by gorgeous full-color photographs, a fascinating foray into space discusses new theories and discoveries and covers every aspect of our universe.

"We fail to mandate economic sanity," writes Garrett Hardin, "because our brains are addled by...compassion." With such startling assertions, Hardin has cut a swathe through the field of ecology for decades, winning a reputation as a fearless and original thinker. A prominent biologist, ecological philosopher, and keen student of human population control, Hardin now offers the finest summation of his work to date, with an eloquent argument for accepting the limits of the earth's resources--and the hard choices we must make to live within them. In *Living Within Limits*, Hardin focuses on the neglected problem of overpopulation, making a forceful case for dramatically changing the way we live in and manage our world. Our world itself, he writes, is in the dilemma of the lifeboat: it can only hold a certain number of people before it sinks--not everyone can be saved. The old idea of progress and limitless growth misses the point that the earth (and each part of it) has a limited carrying capacity; sentimentality should not cloud our ability to take necessary steps to limit population. But Hardin refutes the notion that goodwill and voluntary restraints will be enough. Instead, nations where population is growing must suffer the consequences alone. Too often, he writes, we

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operate on the faulty principle of shared costs matched with private profits. In Hardin's famous essay, "The Tragedy of the Commons," he showed how a village common pasture suffers from overgrazing because each villager puts as many cattle on it as possible--since the costs of grazing are shared by everyone, but the profits go to the individual. The metaphor applies to global ecology, he argues, making a powerful case for closed borders and an end to immigration from poor nations to rich ones. "The production of human beings is the result of very localized human actions; corrective action must be local....Globalizing the 'population problem' would only ensure that it would never be solved." Hardin does not shrink from the startling implications of his argument, as he criticizes the shipment of food to overpopulated regions and asserts that coercion in population control is inevitable. But he also proposes a free flow of information across boundaries, to allow each state to help itself. "The time-honored practice of pollute and move on is no longer acceptable," Hardin tells us. We now fill the globe, and we have no where else to go. In this powerful book, one of our leading ecological philosophers points out the hard choices we must make--and the solutions we have been afraid to consider.

Modern life is complicated, much more so than it used to be. Acclaimed author and social entrepreneur, Julia Hobsbawm, shows you a simpler way. The Simplicity Principle challenges the assumption that all things that are complex have to stay that way. It helps keep things as lean, simple and focused as possible. Smartphone users

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experience concentration interruptions every 12 minutes of the day, there are over 250 billion emails sent every 24 hours and by 2021 the internet will have created more than 3.3 zettabytes of data. Yet complexity doesn't have to dominate, complicate or clutter our lives. Based on a hexagonal model, this book shows you that it's easy to streamline and simplify both your professional and personal lives with lessons based on the natural world. For anyone who feels that life can be too much, The Simplicity Principle will help you break free of the endless choices and complexities that we face in the world today. It's time to gain control of your focus and productivity, and most importantly, KEEP IT SIMPLE.

The story of the exploration of deep space that has largely taken place in the final decades of the 20th century. Space probes have now visited all of the major planets of our Solar System. However, beyond the Solar System, across the final frontier of space, astronomers are now able to explore the Universe by proxy, using evidence from light, radio waves, X-rays and other information gathered by telescopes and satellites. Space provides an insight into the way that astronomers work, explaining how they make the discoveries that make headlines, as well as the stories behind those headlines. John Gribbin puts deep space into perspective with the aid of specially commissioned illustrations and photographs from astronomical telescopes.

A wonderfully readable account of scientific development over the past 700 years, focusing on the lives and achievements of individual scientists, by the bestselling

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author of *In Search of Schrödinger's Cat* In this ambitious new book, John Gribbin tells the stories of the people who have made science, and of the times in which they lived and worked. He begins with Copernicus, during the Renaissance, when science replaced mysticism as a means of explaining the workings of the world, and he continues through the centuries, creating an unbroken genealogy of not only the greatest but also the more obscure names of Western science, a dot-to-dot line linking amateur to genius, and accidental discovery to brilliant deduction. By focusing on the scientists themselves, Gribbin has written an anecdotal narrative enlivened with stories of personal drama, success and failure. A bestselling science writer with an international reputation, Gribbin is among the few authors who could even attempt a work of this magnitude. Praised as “a sequence of witty, information-packed tales” and “a terrific read” by *The Times* upon its recent British publication, *The Scientists* breathes new life into such venerable icons as Galileo, Isaac Newton, Albert Einstein and Linus Pauling, as well as lesser lights whose stories have been undeservedly neglected. Filled with pioneers, visionaries, eccentrics and madmen, this is the history of science as it has never been told before.

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“An in-depth and compelling account of diverse Americans living off the grid.” —Los Angeles Times
The radical search for the simple life in today's America. On a frigid April night, a classically trained opera singer, five months pregnant, and her husband, a former marine

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biologist, disembark an Amtrak train in La Plata, Missouri, assemble two bikes, and pedal off into the night, bound for a homestead they've purchased, sight unseen. Meanwhile, a horticulturist, heir to the Great Migration that brought masses of African Americans to Detroit, and her husband, a product of the white flight from it, have turned to urban farming to revitalize the blighted city they both love. And near Missoula, Montana, a couple who have been at the forefront of organic farming for decades navigate what it means to live and raise a family ethically. A work of immersive journalism steeped in a distinctively American social history and sparked by a personal quest, *The Unsettlers* traces the search for the simple life through the stories of these new pioneers and what inspired each of them to look for -- or create -- a better existence. Captivating and clear-eyed, it dares us to imagine what a sustainable, ethical, authentic future might actually look like.

A groundbreaking theory of personality. The author of the controversial book *The Nurture Assumption* tackles the biggest mystery in all of psychology: What makes people differ so much in personality and behavior? It can't just be "nature and nurture," because even identical twins who grow up together—same genes, same parents—have different personalities. And if psychologists can't explain why identical twins are different, they also can't explain why each of us differs from everyone else. Why no two people are alike. Harris turns out to be well suited for the role of detective—it isn't easy to pull the wool over her eyes. She rounds up the usual suspects and shows why none of the currently popular explanations for human differences—birth order effects, for example, or interactions between genes and environment—can be the perpetrator she is looking for. None of these theories can solve the mystery of human individuality. The search for clues carries Harris into some fascinating

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byways of science. The evidence she examines ranges from classic experiments in social psychology to cutting-edge research in neuroscience. She looks at studies of twins, research on autistic children, observations of chimpanzees, birds, and even ants. Her solution is a startlingly original one: the first completely new theory of personality since Freud's. Based on a principle of evolutionary psychology—the idea that the human mind is a toolbox of special-purpose devices—Harris's theory explains how attributes we all have in common can make us different. This is the story of a scientific quest, but it is also the personal story of a courageous and innovative woman who refused to be satisfied with "what everyone knows is true."

Examines the concepts of information, meaning, and purpose, describes the function of information at various levels of organization, and discusses the theories of Edward Fredkin, Edward O. Wilson, and Kenneth Blouiding

Accessible exploration of one of the most exciting areas of scientific inquiry - the nature of light. Following on from his bestseller, *SCHRODINGER'S CAT*, John Gribbin presents the recent dramatic improvements in experimental techniques that have enabled physicists to formulate and test new theories about the nature of light. He describes these theories not in terms of hard-to-imagine entities like spinning subnuclear particles, but in terms of the fate of two small cats, separated at a tender age and carried to opposite ends of the universe. In this way Gribbin introduces the reader to such new developments as quantum cryptography, through which unbreakable codes can be made, and goes on to possible future developments such as the idea that the 'entanglement' of quantum particles could be a way to build a STAR TREK style teleportation machine.

The story of two brilliant nineteenth-century scientists who discovered the electromagnetic

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field, laying the groundwork for the amazing technological and theoretical breakthroughs of the twentieth century Two of the boldest and most creative scientists of all time were Michael Faraday (1791-1867) and James Clerk Maxwell (1831-1879). This is the story of how these two men - separated in age by forty years - discovered the existence of the electromagnetic field and devised a radically new theory which overturned the strictly mechanical view of the world that had prevailed since Newton's time. The authors, veteran science writers with special expertise in physics and engineering, have created a lively narrative that interweaves rich biographical detail from each man's life with clear explanations of their scientific accomplishments. Faraday was an autodidact, who overcame class prejudice and a lack of mathematical training to become renowned for his acute powers of experimental observation, technological skills, and prodigious scientific imagination. James Clerk Maxwell was highly regarded as one of the most brilliant mathematical physicists of the age. He made an enormous number of advances in his own right. But when he translated Faraday's ideas into mathematical language, thus creating field theory, this unified framework of electricity, magnetism and light became the basis for much of later, 20th-century physics. Faraday's and Maxwell's collaborative efforts gave rise to many of the technological innovations we take for granted today - from electric power generation to television, and much more. Told with panache, warmth, and clarity, this captivating story of their greatest work - in which each played an equal part - and their inspiring lives will bring new appreciation to these giants of science.

The theory of evolution by natural selection did not spring fully formed and unprecedented from the brain of Charles Darwin. The idea of evolution had been around, in various guises, since

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the time of Ancient Greece. And nor did theorizing about evolution stop with what Daniel Dennett called "Darwin's dangerous idea." In this riveting new book, bestselling science writers John and Mary Gribbin explore the history of the idea of evolution, showing how Darwin's theory built on what went before and how it was developed in the twentieth century, through an understanding of genetics and the biochemical basis of evolution, into the so-called "modern synthesis" and beyond. Darwin deserves his recognition as the primary proponent of the idea of natural selection, but as the authors show, his contribution was one link in a chain that extends back into antiquity and is still being forged today.

The Challenge Built to Last, the defining management study of the nineties, showed how great companies triumph over time and how long-term sustained performance can be engineered into the DNA of an enterprise from the very beginning. But what about the company that is not born with great DNA? How can good companies, mediocre companies, even bad companies achieve enduring greatness? The Study For years, this question preyed on the mind of Jim Collins. Are there companies that defy gravity and convert long-term mediocrity or worse into long-term superiority? And if so, what are the universal distinguishing characteristics that cause a company to go from good to great? The Standards Using tough benchmarks, Collins and his research team identified a set of elite companies that made the leap to great results and sustained those results for at least fifteen years. How great? After the leap, the good-to-great companies generated cumulative stock returns that beat the general stock market by an average of seven times in fifteen years, better than twice the results delivered by a composite index of the world's greatest companies, including Coca-Cola, Intel, General Electric, and Merck. The Comparisons The research team contrasted the good-to-great companies with a

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carefully selected set of comparison companies that failed to make the leap from good to great. What was different? Why did one set of companies become truly great performers while the other set remained only good? Over five years, the team analyzed the histories of all twenty-eight companies in the study. After sifting through mountains of data and thousands of pages of interviews, Collins and his crew discovered the key determinants of greatness -- why some companies make the leap and others don't. The Findings The findings of the Good to Great study will surprise many readers and shed light on virtually every area of management strategy and practice. The findings include: Level 5 Leaders: The research team was shocked to discover the type of leadership required to achieve greatness. The Hedgehog Concept (Simplicity within the Three Circles): To go from good to great requires transcending the curse of competence. A Culture of Discipline: When you combine a culture of discipline with an ethic of entrepreneurship, you get the magical alchemy of great results. Technology Accelerators: Good-to-great companies think differently about the role of technology. The Flywheel and the Doom Loop: Those who launch radical change programs and wrenching restructurings will almost certainly fail to make the leap. "Some of the key concepts discerned in the study," comments Jim Collins, "fly in the face of our modern business culture and will, quite frankly, upset some people." Perhaps, but who can afford to ignore these findings?

"John and Mary Gribbin tell the remarkable story of how we came to understand the phenomenon of Ice Ages, focusing on the key personalities obsessed with the search for answers. How frequently do Ice Ages occur? How do astronomical rhythms affect the Earth's climate? Have there always been two polar ice caps? Is it true that tiny changes in the heat balance of the Earth could plunge us back into full Ice Age conditions? With startling new

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material on how the last major Ice Epoch could have hastened human evolution, Ice Age explains why the Earth was once covered in ice - and how that made us human."--BOOK JACKET.

The definitive biography of an industrial genius, philanthropist, and enigma.

The study of chaotic systems has become a major scientific pursuit in recent years, shedding light on the apparently random behaviour observed in fields as diverse as climatology and mechanics. In *The Essence of Chaos* Edward Lorenz, one of the founding fathers of Chaos and the originator of its seminal concept of the Butterfly Effect, presents his own landscape of our current understanding of the field. Lorenz presents everyday examples of chaotic behaviour, such as the toss of a coin, the pinball's path, the fall of a leaf, and explains in elementary mathematical terms how their essentially chaotic nature can be understood. His principal example involved the construction of a model of a board sliding down a ski slope. Through this model Lorenz illustrates chaotic phenomena and the related concepts of bifurcation and strange attractors. He also provides the context in which chaos can be related to the similarly emergent fields of nonlinearity, complexity and fractals. As an early pioneer of chaos, Lorenz also provides his own story of the human endeavour in developing this new field. He describes his initial encounters with chaos through his study of climate and introduces many of the personalities who contributed early breakthroughs. His seminal paper, "Does the Flap of a Butterfly's Wing in Brazil Set Off a Tornado in Texas?" is

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published for the first time.

But the sensitive way in which systems respond to those basic laws, combined with feedback, can explain why, for example, just one vehicle braking on a motorway can cause a traffic jam; how a tiny genetic mutation or environmental change may make a species develop in a wholly different way.

Los Angeles Times bestseller • More than 1.5 million copies sold “If hygge is the art of doing nothing, ikigai is the art of doing something—and doing it with supreme focus and joy.” —New York Post Bring meaning and joy to all your days with this internationally bestselling guide to the Japanese concept of ikigai (pronounced ee-key-guy)—the happiness of always being busy—as revealed by the daily habits of the world’s longest-living people. *And from the same authors, don’t miss The Book of Ichigo Ichie—about making the most of every moment in your life.* * * * What’s your ikigai? “Only staying active will make you want to live a hundred years.” —Japanese proverb According to the Japanese, everyone has an ikigai—a reason for living. And according to the residents of the Japanese village with the world’s longest-living people, finding it is the key to a happier and longer life. Having a strong sense of ikigai—the place where passion, mission, vocation, and profession intersect—means that each day is infused with meaning. It’s the reason we get up in the morning. It’s also the reason many Japanese never really retire (in fact there’s no word in Japanese that means retire in the sense it does in English): They remain active and work at what they enjoy, because they’ve

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found a real purpose in life—the happiness of always being busy. In researching this book, the authors interviewed the residents of the Japanese village with the highest percentage of 100-year-olds—one of the world's Blue Zones. Ikigai reveals the secrets to their longevity and happiness: how they eat, how they move, how they work, how they foster collaboration and community, and—their best-kept secret—how they find the ikigai that brings satisfaction to their lives. And it provides practical tools to help you discover your own ikigai. Because who doesn't want to find happiness in every day? A

PENGUIN LIFE TITLE

Everyone wants to be rich, but do you know that there is a SCIENCE OF GETTING RICH. This book explains in simple steps how you can first ready yourself to earn more, without hassles or worries. From the simplest question of who all can actually get rich, to the small steps taken – like developing a will power, showing gratitude, getting into the right business – have been explained in detail, in everyday terms. Read on, and find out the secret behind changing your life and the way you earn.

En este libro encontraras: ADN, Agua, Agujeros de gusano, Ctomo, Efecto Jupiter, Evento KT, Experimento Young, Genes saltarines, Gaia, Seleccion natural, Vida unicelular, Virus, ...

A paperback edition of a best-selling tour of the cutthroat world of Wall Street derivatives in the 1990s features a new epilogue and tracks the author's experiences as a successful young Morgan Stanley employee, in an account that traces the period's

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speculative frenzies and the ways in which they directly contributed to highly publicized losses. Reprint.

Here is a multidimensional playland of ideas from the world's most eccentric Nobel-Prize winning scientist. Kary Mullis is legendary for his invention of PCR, which redefined the world of DNA, genetics, and forensic science. He is also a surfer, a veteran of Berkeley in the sixties, and perhaps the only Nobel laureate to describe a possible encounter with aliens. A scientist of boundless curiosity, he refuses to accept any proposition based on secondhand or hearsay evidence, and always looks for the "money trail" when scientists make announcements. Mullis writes with passion and humor about a wide range of topics: from global warming to the O. J. Simpson trial, from poisonous spiders to HIV, from scientific method to astrology. *Dancing Naked in the Mind Field* challenges us to question the authority of scientific dogma even as it reveals the workings of an uncannily original scientific mind.

The world around us seems to be a complex place. But, as John Gribbin explains, chaos and complexity obey simple laws - essentially, the same straightforward principles that Isaac Newton discovered more than 300 years ago.

Popular physics primer by an acclaimed author offers accessible, imaginative explanations of string theory, the Schrödinger's Cat paradox, quantum uncertainty, black holes, and other cosmic oddities. Numerous playful

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illustrations.

The 20th century gave us two great theories of physics: the general theory of relativity, which describes the behaviour of things on a very large scale, including the entire Universe; and quantum theory, which describes the behaviour of things on a very small scale, the sub-atomic world. The refusal of the Universe to reveal an equation that combines these two great ideas has caused some people to doubt our whole understanding of physics. In this landmark new book, popular science master John Gribbin tells the dramatic story of the quest that has led us to discover the true age of the Universe (13.8 billion years) and the stars (just a little bit younger). This discovery, Gribbin argues, is one of humankind's greatest achievements and shows us that physics is on the right track to finding the 'Theory of Everything'. 13.8 provides an eye-opening look at this cutting-edge area of modern cosmology and physics, and tells the compelling story of what modern science has achieved - and what it can still achieve.

Taking a close-up look at the complexities of evolution, the author of *Virus X* and *The Forgotten Plague* explores the role of interaction among species in promoting the diversity of life, examining key examples of symbiosis and demonstrating that huge leaps in evolution have arisen from the blending of life forms.

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In a wonderful synthesis of science, history, and imagination, Gino Segrè, an internationally renowned theoretical physicist, embarks on a wide-ranging exploration of how the fundamental scientific concept of temperature is bound up with the very essence of both life and matter. Why is the internal temperature of most mammals fixed near 98.6°? How do geologists use temperature to track the history of our planet? Why is the quest for absolute zero and its quantum mechanical significance the key to understanding superconductivity? And what can we learn from neutrinos, the subatomic "messages from the sun" that may hold the key to understanding the birth-and death-of our solar system? In answering these and hundreds of other temperature-sensitive questions, Segrè presents an uncanny view of the world around us.

In this candid and witty autobiography, Nobel laureate Herbert A. Simon looks at his distinguished and varied career, continually asking himself whether (and how) what he learned as a scientist helps to explain other aspects of his life. A brilliant polymath in an age of increasing specialization, Simon is one of those rare scholars whose work defines fields of inquiry. Crossing disciplinary lines in half a dozen fields, Simon's story encompasses an explosion in the information sciences, the transformation of psychology by the information-processing paradigm, and the use of computer simulation for modeling the behavior of highly

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complex systems. Simon's theory of bounded rationality led to a Nobel Prize in economics, and his work on building machines that think—based on the notion that human intelligence is the rule-governed manipulation of symbols—laid conceptual foundations for the new cognitive science. Subsequently, contrasting metaphors of the maze (Simon's view) and of the mind (neural nets) have dominated the artificial intelligence debate. There is also a warm account of his successful marriage and of an unconsummated love affair, letters to his children, columns, a short story, and political and personal intrigue in academe. In the tradition of Octavia Butler, here is radical self-help, society-help, and planet-help to shape the futures we want. Change is constant. The world, our bodies, and our minds are in a constant state of flux. They are a stream of ever-mutating, emergent patterns. Rather than steel ourselves against such change, Emergent Strategy teaches us to map and assess the swirling structures and to read them as they happen, all the better to shape that which ultimately shapes us, personally and politically. A resolutely materialist spirituality based equally on science and science fiction: a wild feminist and afro-futurist ride! adrienne maree brown, co-editor of Octavia's Brood: Science Fiction from Social Justice Movements, is a social justice facilitator, healer, and doula living in Detroit. Quantum theory is so shocking that Einstein could not bring himself to accept it. It

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