

## COLLEGE

What It Was, Is, and Should Be

ANDREW DELBANCO

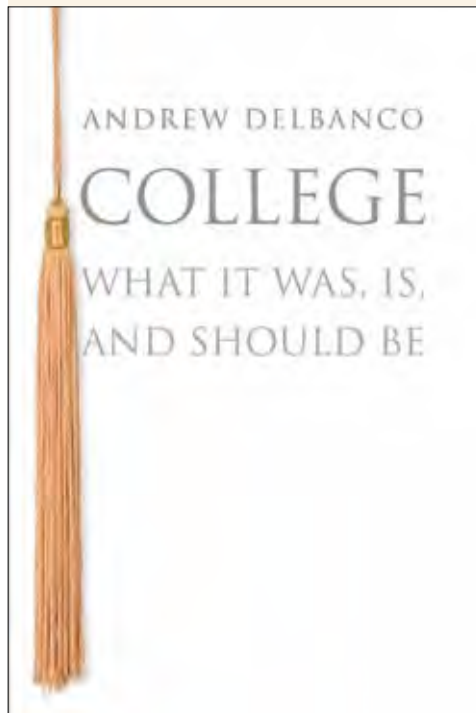
As the commercialization of American higher education accelerates, more and more students are coming to college with the narrow aim of obtaining a preprofessional credential. The traditional four-year college experience—an exploratory time for students to discover their passions and test ideas and values with the help of teachers and peers—is in danger of becoming a thing of the past.

In *College*, prominent cultural critic Andrew Delbanco offers a trenchant defense of such an education, and warns that it is becoming a privilege reserved for the relatively rich. In arguing for what a true college education should be, he demonstrates why making it available to as many young people as possible remains central to America's democratic promise.

In a brisk and vivid historical narrative, Delbanco explains how the idea of college arose in the colonial period from the Puritan idea of the gathered church, how it struggled to survive in the nineteenth century in the shadow of the new research universities, and how, in the twentieth century, it slowly opened its doors to women, minorities, and students from low-income families. He describes the unique strengths of America's colleges in our era of globalization and, while recognizing the growing centrality of science, technology, and vocational subjects in the curriculum, he mounts a vigorous defense of a broadly humanistic education for all. Acknowledging the serious financial, intellectual, and ethical challenges that all colleges face today, Delbanco considers what is at stake in the urgent effort to protect these venerable institutions for future generations.

**Andrew Delbanco** is the Mendelson Family Chair of American Studies and the Julian Clarence Levi Professor in the Humanities at Columbia University. His many books include *Melville: His World and Work* (Vintage), which won the Lionel Trilling Award and was a finalist for the *Los Angeles Times* book prize in biography.

THE STRENGTHS AND FAILURES OF THE  
AMERICAN COLLEGE, AND WHY  
LIBERAL EDUCATION STILL MATTERS



“This terrific book is wonderfully direct and engaging, and full of well-chosen historical examples and relevant quotations. Delbanco’s love of learning comes through clearly. He eloquently articulates and defends a certain ideal conception of the undergraduate experience and rightly makes us worry about the prospects for preserving it.”

—Michael McPherson, *The Spencer Foundation*

APRIL

Cloth \$24.95T

978-0-691-13073-6

240 pages. 5 ½ x 8 ½.

EDUCATION ■ CURRENT AFFAIRS

PRESS.PRINCETON.EDU

BEST-SELLING ECONOMIST EXPLAINS  
WHY WE NEED TO RECLAIM FINANCE  
FOR THE COMMON GOOD

Robert J.  
Shiller

Finance  
*and the*  
Good  
Society

“This is an overflowing feast of ideas and facts—from Adam Smith to neuroscience to casino design—that will convince intelligent readers who think of finance as an arcane subject that it is not just interesting but even entertaining.”  
—Robert Wade, London School of Economics and Political Science

## FINANCE AND THE GOOD SOCIETY

ROBERT J. SHILLER

The reputation of the financial industry could hardly be worse than it is today in the painful aftermath of the 2008 financial crisis. *New York Times* best-selling economist Robert Shiller is no apologist for the sins of finance—he is probably the only person to have predicted both the stock market bubble of 2000 and the real estate bubble that led up to the subprime mortgage meltdown. But in this important and timely book, Shiller argues that, rather than condemning finance, we need to reclaim it for the common good. He makes a powerful case for recognizing that finance, far from being a parasite on society, is one of the most powerful tools we have for solving our common problems and increasing the general well-being. We need more financial innovation—not less—and finance should play a larger role in helping society achieve its goals.

Challenging the public and its leaders to rethink finance and its role in society, Shiller argues that finance should be defined not merely as the manipulation of money or the management of risk but as the stewardship of society’s assets. He explains how people in financial careers—from CEO, investment manager, and banker to insurer, lawyer, and regulator—can and do manage, protect, and increase these assets. He describes how finance has historically contributed to the good of society through inventions such as insurance, mortgages, savings accounts, and pensions, and argues that we need to envision new ways to rechannel financial creativity to benefit society as a whole.

Ultimately, Shiller shows how society can once again harness the power of finance for the greater good.

**Robert J. Shiller** is the author of *Irrational Exuberance* and *The Subprime Solution*, and the coauthor, with George A. Akerlof, of *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism* (all Princeton). He is the Arthur M. Okun Professor of Economics at Yale University.

APRIL

Cloth \$24.95T

978-0-691-15488-6

304 pages. 6 x 9.

POPULAR ECONOMICS ■ BUSINESS

PRESS.PRINCETON.EDU

## An interview with Robert J. Shiller

**The title of your book, *Finance and the Good Society*, might strike some readers as a contradiction in terms. Why are they wrong?**

Finance is widely viewed as an activity that promotes inequality. But financial institutions can be democratizing and can reduce inequality if they are set up right. Finance is not merely about making money. It's about achieving our deep goals and protecting the fruits of our labor. It's about stewardship and therefore about achieving the good society.

**Who are you trying to reach with this book?**

My first inspiration was my college students, who are trying to find their place in the world. Doing just about anything important for our society requires some knowledge of finance and working with people in the various financial roles outlined in the book. As I worked on it more, though, I conceived a broader mission, namely rethinking how people in these financial roles actually work together to produce a good society. Thinking about this is something we should all do because it will help us do a better job of figuring out how financial innovation can improve society.

**How does the current financial crisis relate to your book?**

The financial crisis is a growing pain, the kind of accident that happens as we develop and move forward. There was too much complacency about existing institutions. Our reaction to the crisis should primarily be to develop fundamental financial innovations that better serve our real goals.

**Given the aims of the good society, what role should government play in the financial sector?**

We have to be careful that government isn't captured by existing financial interests. People have to see a sharp distinction between financial forms as they exist today, and that often serve some specific interests, and the kinds of democratized forms we might see tomorrow. A properly functioning government and a properly functioning financial community should consider the interests of all elements of society, and will encourage innovation that will eventually make existing financial forms obsolete. Doing this well requires technical financial expertise, not political slogans, and respect for the experience of people in the financial community.



Michael Marsland/Yale University

New York Times best-selling economist Robert J. Shiller

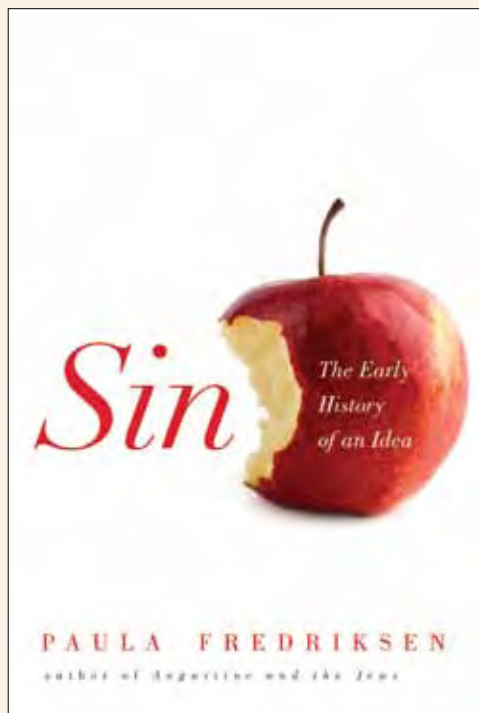
“Drawing from history, economic theory, and keen observation of our economy, Robert Shiller brings a fresh perspective to a big issue—the role of finance in our society. He urges us to overcome the popular misperception that all finance is sleazy and to think broadly about how we can harness its power for the benefit of society as a whole.”

—Darrell Duffie, Graduate School of Business, Stanford University

“Many MBA students are fascinated by the world of finance but wary of entering it because they perceive it as declining and marred by unethical behavior. This book will show them why finance is and should be a vital part of the good society's solution, rather than its problem. No other book does this with more authority or credibility.”

—Shlomo Maital, professor emeritus, Technion-Israel Institute of Technology

WHY THE MEANING OF SIN CHANGED RADICALLY  
DURING THE FIRST CENTURIES OF CHRISTIANITY



“Paula Fredriksen’s new book offers a masterfully clear and readable exposition of complex issues, showing how traditional Jewish views of sin were transmuted by the Christian theologians Origen and Augustine in nearly opposite ways, to create startlingly different views of human nature.”

—Elaine Pagels, author of *The Origin of Satan*

JUNE

Cloth \$24.95T

978-0-691-12890-0

248 pages. 12 halftones. 5 ½ x 8 ½.

RELIGION ■ HISTORY

PRESS.PRINCETON.EDU

## SIN

The Early History of an Idea

PAULA FREDRIKSEN

Ancient Christians invoked sin to account for an astonishing range of things, from the death of God’s son to the politics of the Roman Empire that worshipped him. In this book, award-winning historian of religion Paula Fredriksen tells the surprising story of early Christian concepts of sin, exploring the ways that sin came to shape ideas about God no less than about humanity.

Long before Christianity, of course, cultures had articulated the idea that human wrongdoing violated relations with the divine. But *Sin* tells how, in the fevered atmosphere of the four centuries between Jesus and Augustine, singular new Christian ideas about sin emerged in rapid and vigorous variety, including the momentous shift from the belief that sin is something one does to something that one is born into. As the original defining circumstances of their movement quickly collapsed, early Christians were left to debate the causes, manifestations, and remedies of sin. This is a powerful and original account of the early history of an idea that has centrally shaped Christianity and left a deep impression on the secular world as well.

**Paula Fredriksen** is the author of *Jesus of Nazareth, King of the Jews*, which won the National Jewish Book Award. She is also the author of *Augustine and the Jews* and *From Jesus to Christ*. The Aurelio Professor Emerita at Boston University, she now teaches as Distinguished Visiting Professor of Comparative Religion at the Hebrew University in Jerusalem.

“Paula Fredriksen’s *Sin* is a gripping book on an immense theme. Fredriksen makes us realize that what is at stake is not simply ‘sin’ (as we usually think of it) but what it is to be human, to live in a material universe, and to expect redemption from a God of many faces. . . . [*Sin*] is a magnificent ride.”

—Peter Brown, Princeton University

# THE WAR OF THE SEXES

How Conflict and Cooperation Have Shaped Men and Women from Prehistory to the Present

PAUL SEABRIGHT

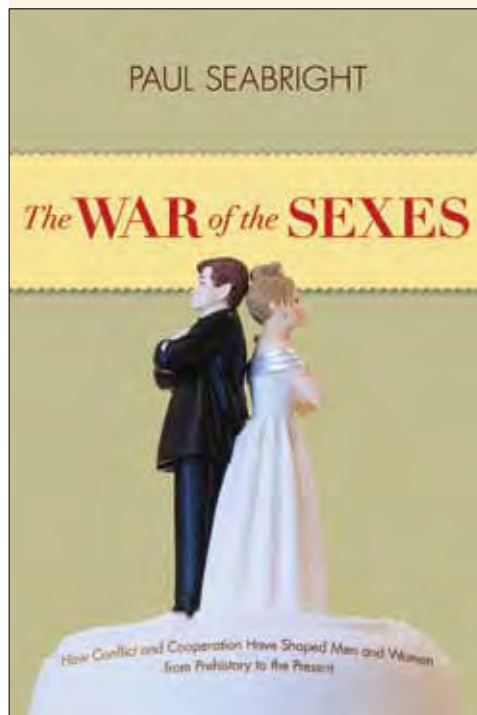
As countless love songs, movies, and self-help books attest, men and women have long sought different things. The result? Seemingly inevitable conflict. Yet we belong to the most cooperative species on the planet. Isn't there a way we can use this capacity to achieve greater harmony and equality between the sexes? In *The War of the Sexes*, Paul Seabright argues that there is—but first we must understand how the tension between conflict and cooperation developed in our remote evolutionary past, how it shaped the modern world, and how it still holds us back, both at home and at work.

Drawing on biology, sociology, anthropology, and economics, Seabright shows that conflict between the sexes is, paradoxically, the product of cooperation. The evolutionary niche—the long dependent childhood—carved out by our ancestors requires the highest level of cooperative talent. But it also gives couples more to fight about. Men and women became experts at influencing one another to achieve their cooperative ends, but also became trapped in strategies of manipulation and deception in pursuit of sex and partnership. In early societies, economic conditions moved the balance of power in favor of men, as they cornered scarce resources for use in the sexual bargain. Today, conditions have changed beyond recognition, yet inequalities between men and women persist, as the brains, talents, and preferences we inherited from our ancestors struggle to deal with the unpredictable forces unleashed by the modern information economy.

Men and women today have an unprecedented opportunity to achieve equal power and respect. But we need to understand the mixed inheritance of conflict and cooperation left to us by our primate ancestors if we are finally to escape their legacy.

**Paul Seabright** is the author of *The Company of Strangers: A Natural History of Economic Life* (Princeton). He is professor of economics at the Toulouse School of Economics and has been a fellow of All Souls College, University of Oxford, and Churchill College, University of Cambridge.

HOW OUR STONE-AGE BRAINS MADE  
MODERN SOCIETY, AND WHY IT MATTERS  
FOR RELATIONSHIPS BETWEEN MEN AND WOMEN



*"The War of the Sexes is a delight to read. Paul Seabright launches a charm offensive on those who would prefer not to think that gender differences have any biological basis, and an intellectual offensive on those who think that these differences are large and intractable."*

—Terri Apter, author of *Working Women Don't Have Wives*

MAY

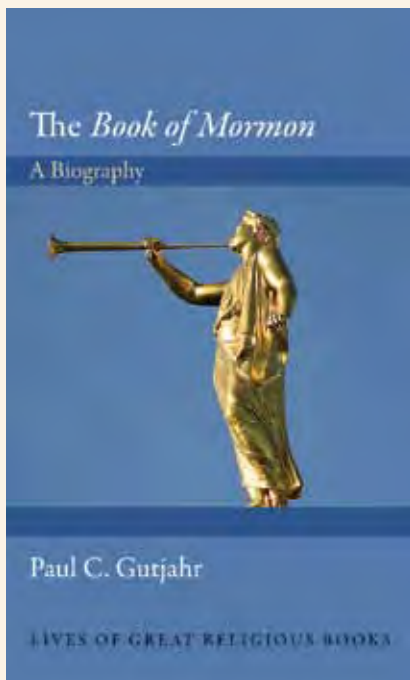
Cloth \$24.95T

978-0-691-13301-0  
240 pages. 6 line illus. 6 x 9.

POPULAR ECONOMICS ■  
POPULAR SCIENCE

PRESS.PRINCETON.EDU

THE SURPRISING CAREER OF  
JOSEPH SMITH'S FAMOUS BOOK



“This probing and engaging study surveys the history, use, translation, and adaptation into other media of the *Book of Mormon*. I know of nothing else quite like it. Religious traditions change over time, and controlling a sacred text plays an important role in the self-identity of the community. Gutjahr explains not simply how changes in the text took place, but why.”

—Laurie F. Maffly-Kipp, editor of *American Scriptures: An Anthology of Sacred Writings*

APRIL

Cloth \$24.95T

978-0-691-14480-1

232 pages. 23 halftones.

1 table. 4 ½ x 7 ½.

RELIGION ■ AMERICAN HISTORY

PRESS.PRINCETON.EDU

LIVES OF GREAT RELIGIOUS BOOKS

## THE BOOK OF MORMON

A Biography

PAUL C. GUTJAHR

Late one night in 1823 Joseph Smith, Jr. was reportedly visited in his family's farmhouse in upstate New York by an angel named Moroni. According to Smith, Moroni told him of a buried stack of gold plates that were inscribed with a history of the Americas' ancient peoples, and which would restore the pure Gospel message as Jesus had delivered it to them. Thus began the unlikely career of the *Book of Mormon*, the founding text of the Mormon religion, and perhaps the most important sacred text ever to originate in the United States. Here Paul Gutjahr traces the life of this book as it has formed and fractured different strains of Mormonism and transformed religious expression around the world.

Gutjahr looks at how the *Book of Mormon* emerged from the burned-over district of upstate New York, where revivalist preachers, missionaries, and spiritual entrepreneurs of every stripe vied for the loyalty of settlers desperate to scratch a living from the land. He examines how a book that has long been the subject of ridicule—Mark Twain called it “chloroform in print”—has more than 150 million copies in print in more than a hundred languages worldwide. Gutjahr shows how Smith's influential book launched one of the fastest growing new religions on the planet, and has featured in everything from comic books and action figures to feature-length films and an award-winning Broadway musical.

**Paul C. Gutjahr** is professor of English at Indiana University. His books include *Charles Hodge: Guardian of American Orthodoxy* and *An American Bible: A History of the Good Book in the United States, 1777–1880*.

LIVES OF GREAT RELIGIOUS BOOKS

LIVES OF GREAT RELIGIOUS BOOKS is a new series of short volumes that recount the complex and fascinating histories of important religious texts from around the world. Written for general readers by leading authors and experts, these books examine the historical origins of texts from the great religious traditions, and trace how their reception, interpretation, and influence have changed—often radically—over time. As these stories of translation, adaptation, appropriation, and inspiration dramatically remind us, all great religious books are living things whose careers in the world can take the most unexpected turns.

# THE *I CHING*

A Biography

RICHARD J. SMITH

The *I Ching* originated in China as a divination manual more than three thousand years ago. In 136 BCE the emperor declared it a Confucian classic, and in the centuries that followed, this work had a profound influence on the philosophy, religion, art, literature, politics, science, technology, and medicine of various cultures throughout East Asia. Jesuit missionaries brought knowledge of the *I Ching* to Europe in the seventeenth century, and the American counterculture embraced it in the 1960s. Here Richard Smith tells the extraordinary story of how this cryptic and once obscure book became one of the most widely read and extensively analyzed texts in all of world literature.

In this concise history, Smith traces the evolution of the *I Ching* in China and throughout the world, explaining its complex structure, its manifold uses in different cultures, and its enduring appeal. He shows how the indigenous beliefs and customs of Japan, Korea, Vietnam, and Tibet “domesticated” the text, and he reflects on whether this Chinese classic can be compared to religious books such as the Bible or the Qur’an. Smith also looks at how the *I Ching* came to be published in dozens of languages, providing insight and inspiration to millions worldwide—including ardent admirers in the West such as Leibniz, Carl Jung, Philip K. Dick, Allen Ginsberg, Hermann Hesse, Bob Dylan, Jorge Luis Borges, and I. M. Pei. Smith offers an unparalleled biography of the most revered book in China’s entire cultural tradition, and he shows us how this enigmatic ancient classic has become a truly global phenomenon.

**Richard J. Smith** is the George and Nancy Rupp Professor of Humanities and professor of history at Rice University.

LIVES OF GREAT RELIGIOUS BOOKS

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MARTIN E. MARTY

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GARRY WILLS

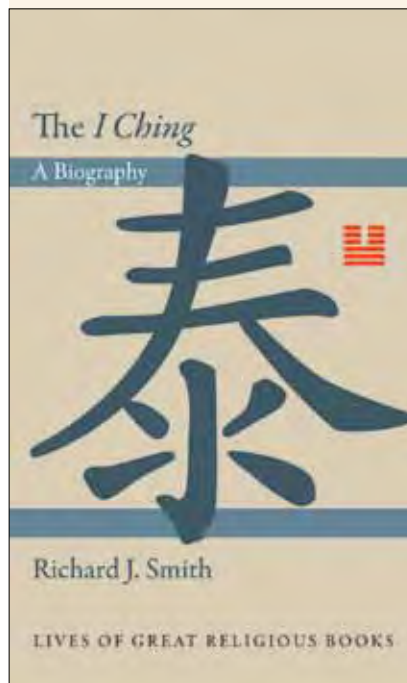
Cloth \$19.95T 978-0-691-14357-6

*The Tibetan Book of the Dead*: A Biography

DONALD S. LOPEZ, JR.

Cloth \$19.95T 978-0-691-13435-2

HOW THE *I CHING* BECAME ONE OF  
THE MOST WIDELY READ AND INFLUENTIAL  
BOOKS IN THE WORLD



“Richard Smith synthesizes a great deal of information about the *I Ching* and presents it with admirable clarity. I know of no one else who commands the history of this text to the extent that he does, whether in China or especially in its global context. His excellent book will find a ready and wide readership.”

—Edward L. Shaughnessy, author of  
*Confucian and Taoist Wisdom*

APRIL

Cloth \$25.95T

978-0-691-14509-9

264 pages. 7 halftones.

13 line illus. 4 ½ x 7 ½.

RELIGION ■ ASIAN STUDIES

PRESS.PRINCETON.EDU

WHY COMPROMISE IS ESSENTIAL  
FOR EFFECTIVE GOVERNMENT AND  
WHY IT IS MISSING IN POLITICS TODAY



“As one would expect from Gutmann and Thompson, *The Spirit of Compromise* thoughtfully and effectively blends theory with real-life examples to underscore a larger important thesis: the political process of compromise matters.”

—Norman J. Ornstein, coauthor of *The Broken Branch: How Congress Is Failing America and How to Get It Back on Track*

MAY

Cloth \$24.95T

978-0-691-15391-9

176 pages. 5 ½ x 8 ½.

POLITICS ■ PHILOSOPHY

PRESS.PRINCETON.EDU

## THE SPIRIT OF COMPROMISE

Why Governing Demands It and  
Campaigning Undermines It

AMY GUTMANN &  
DENNIS THOMPSON

If politics is the art of the possible, then compromise is the artistry of democracy. Unless one partisan ideology holds sway over all branches of government, compromise is necessary to govern for the benefit of all citizens. A rejection of compromise biases politics in favor of the status quo, even when the rejection risks crisis. Why then is compromise so difficult in American politics today?

In *The Spirit of Compromise*, eminent political thinkers Amy Gutmann and Dennis Thompson connect the rejection of compromise to the domination of campaigning over governing—the permanent campaign—in American democracy today. They show that campaigning for political office calls for a mindset that blocks compromise—standing tenaciously on principle to mobilize voters and mistrusting opponents in order to defeat them. Good government calls for an opposite cluster of attitudes and arguments—the compromising mindset—that inclines politicians to adjust their principles and to respect their opponents. It is a mindset that helps politicians appreciate and take advantage of opportunities for desirable compromise.

Gutmann and Thompson explore the dynamics of these mindsets by comparing the historic compromises on tax reform under President Reagan in 1986 and health care reform under President Obama in 2010. Both compromises were difficult to deliver but only tax reform was bipartisan. Drawing lessons from these and other important compromises—and failures to compromise—in American politics, Gutmann and Thompson propose changes in our political institutions, processes, and mindsets that would encourage a better balance between campaigning and governing.

Calling for greater cooperation in contemporary politics, *The Spirit of Compromise* will interest all who care about whether their government leaders can work together.

**Amy Gutmann** is president of the University of Pennsylvania, where she is also the Christopher H. Browne Distinguished Professor of Political Science. **Dennis Thompson** is the Alfred North Whitehead Professor of Political Philosophy at Harvard University. Gutmann and Thompson are coauthors of *Why Deliberative Democracy?* (Princeton) and *Democracy and Disagreement*.

# HOW TO WIN AN ELECTION

An Ancient Guide for Modern Politicians

## QUINTUS TULLIUS CICERO

Translated and with an introduction by Philip Freeman

*How to Win an Election* is an ancient Roman guide for campaigning that is as up-to-date as tomorrow's headlines. In 64 BC when idealist Marcus Cicero, Rome's greatest orator, ran for consul (the highest office in the Republic), his practical brother Quintus decided he needed some no-nonsense advice on running a successful campaign. What follows in his short letter are timeless bits of political wisdom, from the importance of promising everything to everybody and reminding voters about the sexual scandals of your opponents to being a chameleon, putting on a good show for the masses, and constantly surrounding yourself with rabid supporters. Presented here in a lively and colorful new translation, with the Latin text on facing pages, this unashamedly pragmatic primer on the humble art of personal politicking is dead-on (Cicero won)—and as relevant today as when it was written.

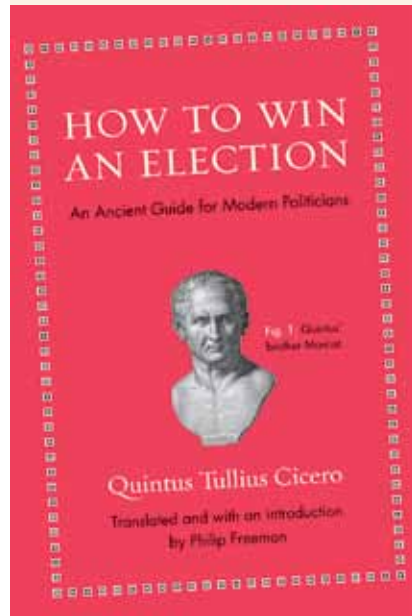
A little-known classic in the spirit of Machiavelli's *Prince*, *How to Win an Election* is required reading for politicians and everyone who enjoys watching them try to manipulate their way into office.

**Philip Freeman** is the author of many books, including *Oh My Gods: A Modern Retelling of Greek and Roman Myths*, *Alexander the Great*, and *Julius Caesar* (all Simon & Schuster). He received his PhD from Harvard University and holds the Qualley Chair of Classical Languages at Luther College in Decorah, Iowa.

"Given the lowly state of politics these days, this ancient Roman handbook on electioneering shows how little has changed. Freeman has done a masterful job of bringing this delightful text into the modern day—so masterful that one might think it was actually a spoof."

—Gary Hart, former U.S. senator

A PRIMER ON CAMPAIGNING IN ANCIENT ROME  
THAT READS LIKE A STRATEGY MEMO  
FROM A MODERN POLITICAL CONSULTANT



"In his election advice to his brother Marcus, Quintus Cicero shows himself to be a master political strategist with a clear understanding of opposition research, organization, and turnout (though a little weak on message). Fresh, lively, and sharp, this primer provides timeless counsel and a great read for the modern political practitioner."

—Karl Rove, former deputy chief of staff and senior advisor to President George W. Bush

MARCH

Cloth \$9.95T

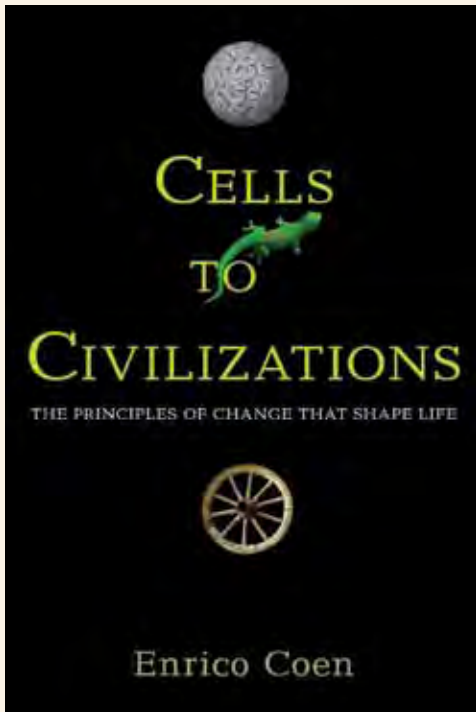
978-0-691-15408-4

144 pages. 4 1/2 x 7.

POLITICS ■ CLASSICS

PRESS.PRINCETON.EDU

THE SCIENCE OF CHANGE,  
FROM CELLS TO CULTURE



“This is a charming, clever, and thought-provoking book. With examples and metaphor, the book advances the idea that the same basic principles operate in evolution, development, learning, and culture.”

—Stephen C. Stearns, Yale University

## CELLS TO CIVILIZATIONS

The Principles of Change That Shape Life

ENRICO COEN

*Cells to Civilizations* is the first unified account of how life transforms itself—from the production of bacteria to the emergence of complex civilizations. What are the connections between evolving microbes, an egg that develops into an infant, or a child who learns to walk and talk? Award-winning scientist Enrico Coen synthesizes the growth of living systems and creative processes, and he reveals that the four great life transformations—evolution, development, learning, and human culture—while typically understood separately, actually all revolve around shared core principles and manifest the same fundamental recipe. Coen blends provocative discussion, the latest scientific research, and colorful examples to demonstrate the links between these critical stages in the history of life.

Coen tells a story rich with genes, embryos, neurons, and fascinating discoveries. He examines the development of the zebra, the adaptations of seaweed, the cave paintings of Lascaux, and the formulations of Alan Turing. He explores how dogs make predictions, how weeds tell the time of day, and how our brains distinguish a Modigliani from a Rembrandt. Locating commonalities in important findings, Coen gives readers a deeper understanding of key transformations and provides a bold portrait for how science both frames and is framed by human culture.

A compelling investigation into the relationships between our biological past and cultural progress, *Cells to Civilizations* presents a remarkable story of living change.

**Enrico Coen** is a plant molecular geneticist based at the John Innes Centre in Norwich, United Kingdom. He is the author of *The Art of Genes*, a fellow of the Royal Society, and a foreign associate of the U.S. National Academy of Science. His awards include the Linnean Gold Medal and the Royal Society Darwin Medal.

JUNE

Cloth \$29.95T

978-0-691-14967-7

312 pages. 20 color illus.

81 halftones. 9 line illus. 6 x 9.

POPULAR SCIENCE ■ BIOLOGY

PRESS.PRINCETON.EDU

# NATURE'S COMPASS

The Mystery of Animal Navigation

JAMES L. GOULD &  
CAROL GRANT GOULD

We know that animals cross miles of water, land, and sky with pinpoint precision on a daily basis. But it is only in recent years that scientists have learned how these astounding feats of navigation are actually accomplished. With colorful and thorough detail, *Nature's Compass* explores the remarkable methods by which animals find their way both near home and around the globe. Noted biologist James Gould and popular science writer Carol Gould delve into the elegant strategies and fail-safe backup systems, the invisible sensitivities and mysterious forces, and incredible mental abilities used by familiar and rare species, as they investigate a multitude of navigation strategies, from the simple to the astonishing.

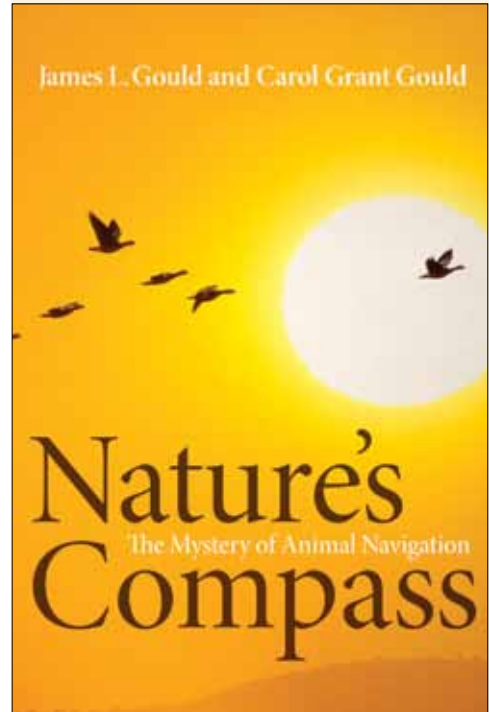
The Goulds discuss how animals navigate, without instruments and training, at a level far beyond human talents. They explain how animals measure time and show how the fragile monarch butterfly employs an internal clock, calendar, compass, and map to commence and measure the two-thousand-mile annual journey to Mexico—all with a brain that weighs only a few thousandths of an ounce. They look at honey bees and how they rely on the sun and mental maps to locate landmarks such as nests and flowers. And they examine whether long-distance migrants, such as the homing pigeon, depend on a global positioning system to let them know where they are. Ultimately, the authors ask if the disruption of migratory paths through habitat destruction and global warming is affecting and endangering animal species.

Providing a comprehensive picture of animal navigation and migration, *Nature's Compass* decodes the mysteries of this extraordinary aspect of natural behavior.

**James L. Gould** is professor of ecology and evolutionary biology at Princeton University. **Carol Grant Gould** is a science writer who has published widely. Together, the Goulds have written nine earlier books, including *The Animal Mind* and *Animal Architects*.

SCIENCE ESSENTIALS

THE MYSTERIOUS AND REMARKABLE  
WAYS THAT ANIMALS NAVIGATE



*"Nature's Compass is a captivating introduction to animal navigation. It draws readers into a world in which myriad creatures outperform humans in every way possible. Enlightening and thought-provoking, this book is a comprehensive exploration of the topic and shows how an understanding of navigation may be critical for conservation."*

—Irene M. Pepperberg, author of *Alex & Me: How a Scientist and a Parrot Uncovered a Hidden World of Animal Intelligence—and Formed a Deep Bond in the Process*

JUNE

Cloth \$29.95T

978-0-691-14045-2

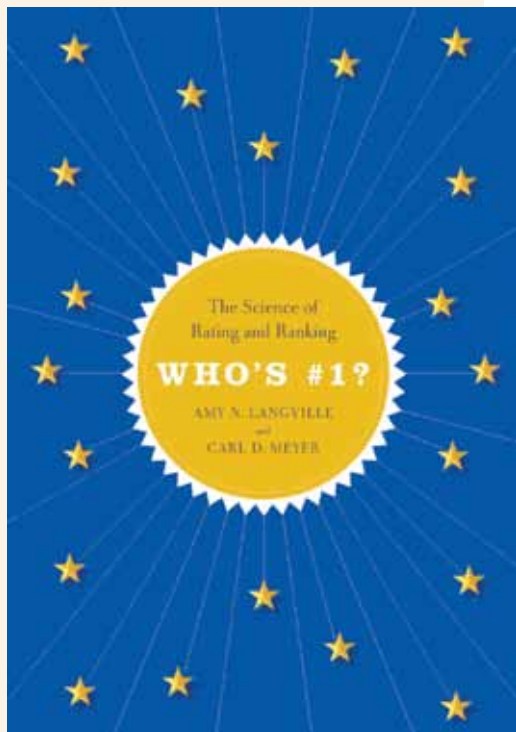
320 pages. 10 halftones.

97 line illus. 1 table. 6 x 9.

POPULAR SCIENCE ■ BIOLOGY

PRESS.PRINCETON.EDU

THE MATHEMATICS BEHIND TODAY'S MOST  
WIDELY USED RATING AND RANKING METHODS



“*Who’s #1?* provides a much-needed synthesis of the methods used for ranking and rating things like sports teams, movies, politicians, and more. There is a ton of interest in this topic, and readers now have one place to look for a comprehensive treatment of the different approaches.”

—Wayne L. Winston, author of *Mathletics: How Gamblers, Managers, and Sports Enthusiasts Use Mathematics in Baseball, Basketball, and Football*

## WHO’S #1?

The Science of Rating and Ranking

AMY N. LANGVILLE &  
CARL D. MEYER

A website’s ranking on Google can spell the difference between success and failure for a new business. NCAA football ratings determine which schools get to play for the big money in postseason bowl games. Product ratings influence everything from the clothes we wear to the movies we select on Netflix. Ratings and rankings are everywhere, but how exactly do they work? *Who’s #1?* offers an engaging and accessible account of how scientific rating and ranking methods are created and applied to a variety of uses.

Amy Langville and Carl Meyer provide the first comprehensive overview of the mathematical algorithms and methods used to rate and rank sports teams, political candidates, products, Web pages, and more. In a series of interesting asides, Langville and Meyer provide fascinating insights into the ingenious contributions of many of the field’s pioneers. They survey and compare the different methods employed today, showing why their strengths and weaknesses depend on the underlying goal, and explaining why and when a given method should be considered.

Langville and Meyer also describe what can and can’t be expected from the most widely used systems.

The science of rating and ranking touches virtually every facet of our lives, and now you don’t need to be an expert to understand how it really works. *Who’s #1?* is the definitive introduction to the subject. It features easy-to-understand examples and interesting trivia and historical facts, and much of the required mathematics is included.

**Amy N. Langville** is associate professor of mathematics at the College of Charleston. **Carl D. Meyer** is professor of mathematics at North Carolina State University. They are the authors of *Google’s PageRank and Beyond: The Science of Search Engine Rankings* (Princeton).

MARCH

Cloth \$29.95T

978-0-691-15422-0

256 pages. 25 halftones.

47 line illus. 60 tables. 7 x 10.

POPULAR MATHEMATICS ■

COMPUTER SCIENCE

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# THE UNIVERSE IN ZERO WORDS

The Story of Mathematics as Told through Equations

DANA MACKENZIE

Most popular books about science, and even about mathematics, tiptoe around equations as if they were something to be hidden from the reader's tender eyes. Dana Mackenzie starts from the opposite premise: He celebrates equations. No history of art would be complete without pictures. Why, then, should a history of mathematics—the universal language of science—keep the masterpieces of the subject hidden behind a veil?

*The Universe in Zero Words* tells the history of twenty-four great and beautiful equations that have shaped mathematics, science, and society—from the elementary ( $1+1=2$ ) to the sophisticated (the Black-Scholes formula for financial derivatives), and from the famous ( $E=mc^2$ ) to the arcane (Hamilton's quaternion equations). Mackenzie, who has been called a “popular-science ace” by *Booklist* magazine, lucidly explains what each equation means, who discovered it (and how), and how it has affected our lives.

Illustrated in color throughout, the book tells the human and often-surprising stories behind the invention or discovery of the equations, from how a bad cigar changed the course of quantum mechanics to why whales (if they could communicate with us) would teach us a totally different concept of geometry. At the same time, the book shows why these equations have something timeless to say about the universe, and how they do it with an economy (zero words) that no other form of human expression can match.

*The Universe in Zero Words* is the ultimate introduction and guide to equations that have changed the world.

**Dana Mackenzie** is the author of *The Big Splat, or How Our Moon Came to Be* (Wiley), among other books. He is a frequent contributor to *Science*, *Discover*, and *New Scientist*. He has a PhD in mathematics from Princeton and was a mathematics professor for thirteen years before becoming a full-time writer.

THE ULTIMATE ILLUSTRATED GUIDE TO  
24 EQUATIONS THAT HAVE CHANGED THE WORLD



“Demanding very little prior mathematical knowledge, this is one of the best popular histories of mathematics in recent years. Dana Mackenzie’s prose is lively and easy to read, and his mix of historical background and personal biographies of the main characters is engaging.”

—Eli Maor, author of *The Pythagorean Theorem: A 4,000-Year History and e: The Story of a Number*

JUNE

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224 pages. 26 color illus.

17 halftones. 12 line illus. 7 x 9 1/2.

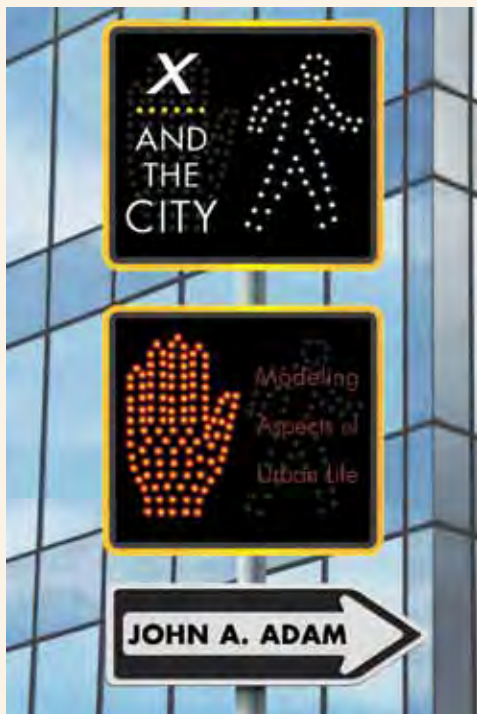
POPULAR MATHEMATICS ■

POPULAR SCIENCE

Not for sale in Australia

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WHAT MATHEMATICAL MODELING  
UNCOVERS ABOUT LIFE IN THE CITY



“In *X and the City*, John Adam proves himself to be a genial and endlessly curious companion as he takes us on a stroll through that fascinating place where reality meets the mathematical imagination. How many squirrels live in Central Park? Should you walk or run in the rain? Anyone who’s ever pondered puzzles like these will find this book to be a treat.”

—Steven Strogatz, Cornell University

## X AND THE CITY

Modeling Aspects of Urban Life

JOHN A. ADAM

*X and the City*, a book of diverse and accessible math-based topics, uses basic modeling to explore a wide range of entertaining questions about urban life. How do you estimate the number of dental or doctor’s offices, gas stations, restaurants, or movie theaters in a city of a given size? How can mathematics be used to maximize traffic flow through tunnels? Can you predict whether a traffic light will stay green long enough for you to cross the intersection? And what is the likelihood that your city will be hit by an asteroid?

Every math problem and equation in this book tells a story and examples are explained throughout in an informal and witty style. The level of mathematics ranges from pre-calculus through calculus to some differential equations, and any reader with knowledge of elementary calculus will be able to follow the materials with ease. There are also some more challenging problems sprinkled in for the more advanced reader.

Filled with interesting and unusual observations about how cities work, *X and the City* shows how mathematics undergirds and plays an important part in the metropolitan landscape.

**John A. Adam** is professor of mathematics at Old Dominion University. He is the author of *A Mathematical Nature Walk* and *Mathematics in Nature*, and coauthor of *Guesstimation: Solving the World’s Problems on the Back of a Cocktail Napkin* (all Princeton).

JUNE

Cloth \$27.95T

978-0-691-15464-0

264 pages. 90 line illus. 6 x 9.

POPULAR MATHEMATICS

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# THE IRRATIONALS

A Story of the Numbers You Can't Count On

JULIAN HAVIL

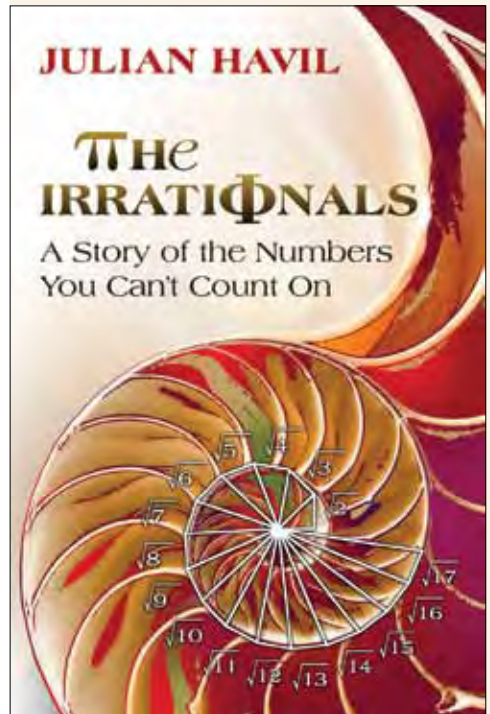
The ancient Greeks discovered them, but it wasn't until the nineteenth century that irrational numbers were properly understood and rigorously defined, and even today not all their mysteries have been revealed. In *The Irrationals*, the first popular and comprehensive book on the subject, Julian Havil tells the story of irrational numbers and the mathematicians who have tackled their challenges, from antiquity to the twenty-first century. Along the way, he explains why irrational numbers are surprisingly difficult to define—and why so many questions still surround them.

That definition seems so simple: they are numbers that cannot be expressed as a ratio of two integers, or that have decimal expansions that are neither infinite nor recurring. But, as *The Irrationals* shows, these are the real “complex” numbers, and they have an equally complex and intriguing history, from Euclid's famous proof that the square root of 2 is irrational to Roger Apéry's proof of the irrationality of a number called Zeta(3), one of the greatest results of the twentieth century. In between, Havil explains other important results, such as the irrationality of  $e$  and pi. He also discusses the distinction between “ordinary” irrationals and transcendentals, as well as the appealing question of whether the decimal expansion of irrationals is “random.”

Fascinating and illuminating, this is a book for everyone who loves math and the history behind it.

**Julian Havil** is the author of *Gamma: Exploring Euler's Constant, Nonplussed!: Mathematical Proof of Implausible Ideas, and Impossible?: Surprising Solutions to Counterintuitive Conundrums* (all Princeton). He is a retired former master at Winchester College, England, where he taught mathematics for more than three decades.

THE FIRST POPULAR HISTORY OF IRRATIONAL NUMBERS AND THEIR DISCOVERERS, FROM ANCIENT GREECE TO THE TWENTY-FIRST CENTURY



“Readers will be swept away by Havil's command of the subject and his wonderful writing style. *The Irrationals* is a lot of fun.”

—Robert Gross, coauthor of *Fearless Symmetry: Exposing the Hidden Patterns of Numbers and Elliptic Tales: Curves, Counting, and Number Theory*

JULY

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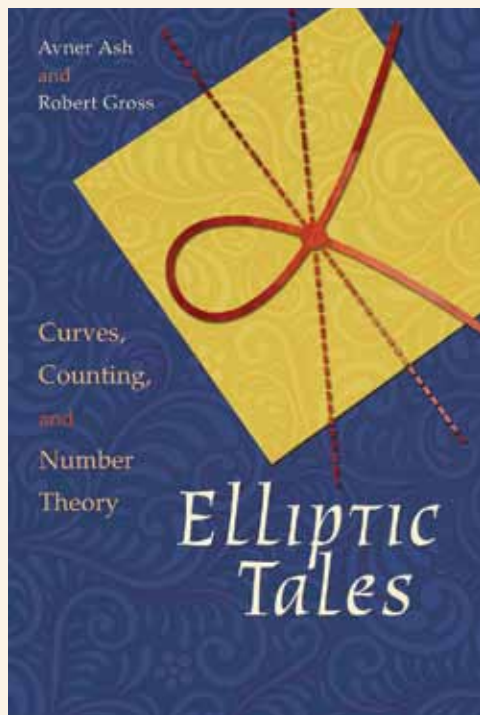
978-0-691-14342-2

280 pages. 100 line illus. 6 x 9.

POPULAR MATHEMATICS

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A LOOK AT ONE OF THE MOST EXCITING  
UNSOLVED PROBLEMS IN MATHEMATICS TODAY



“The Birch and Swinnerton-Dyer Conjecture is one of the great insights in number theory from the twentieth century, and Ash and Gross write with care and a clear love of the subject. *Elliptic Tales* will have wide appeal.”

—Peter Sarnak, Princeton University

## ELLIPTIC TALES

Curves, Counting, and Number Theory

AVNER ASH & ROBERT GROSS

*Elliptic Tales* describes the latest developments in number theory by looking at one of the most exciting unsolved problems in contemporary mathematics—the Birch and Swinnerton-Dyer Conjecture. The Clay Mathematics Institute is offering a prize of \$1 million to anyone who can discover a general solution to the problem. In this book, Avner Ash and Robert Gross guide readers through the mathematics they need to understand this captivating problem.

The key to the conjecture lies in elliptic curves, which are cubic equations in two variables. These equations may appear simple, yet they arise from some very deep—and often very mystifying—mathematical ideas. Using only basic algebra and calculus while presenting numerous eye-opening examples, Ash and Gross make these ideas accessible to general readers, and in the process venture to the very frontiers of modern mathematics. Along the way, they give an informative and entertaining introduction to some of the most profound discoveries of the last three centuries in algebraic geometry, abstract algebra, and number theory. They demonstrate how mathematics grows more abstract to tackle ever more challenging problems, and how each new generation of mathematicians builds on the accomplishments of those who preceded them. Ash and Gross fully explain how the Birch and Swinnerton-Dyer Conjecture sheds light on the number theory of elliptic curves, and how it provides a beautiful and startling connection between two very different objects arising from an elliptic curve, one based on calculus, the other on algebra.

**Avner Ash** is professor of mathematics at Boston College.

**Robert Gross** is associate professor of mathematics at Boston College. They are the coauthors of *Fearless Symmetry: Exposing the Hidden Patterns of Numbers* (Princeton).

APRIL

Cloth \$29.95T

978-0-691-15119-9

312 pages. 52 line illus. 16 tables. 6 x 9.

POPULAR MATHEMATICS

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# WHY CATS LAND ON THEIR FEET

And 76 Other Physical Paradoxes and Puzzles

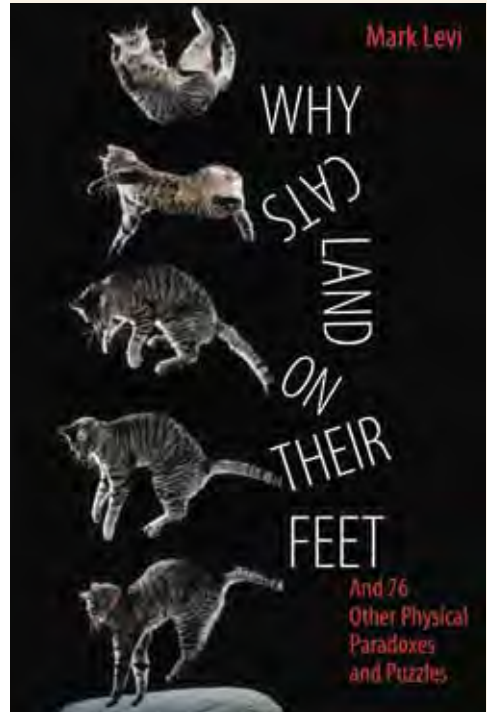
MARK LEVI

Ever wonder why cats land on their feet? Or what holds a spinning top upright? Or whether it is possible to feel the Earth's rotation in an airplane? *Why Cats Land on Their Feet* is a compendium of paradoxes and puzzles that readers can solve using their own physical intuition. And the surprising answers to virtually all of these astonishing paradoxes can be arrived at with no formal knowledge of physics.

Mark Levi introduces each physical problem, sometimes gives a hint or two, and then fully explains the solution. Here readers can test their critical-thinking skills against a whole assortment of puzzlers and paradoxes involving floating and diving, sailing and gliding, gymnastics, bike riding, outer space, throwing a ball from a moving car, centrifugal force, gyroscopic motion, and, of course, falling cats.

Want to figure out how to open a wine bottle with a book? Or how to compute the square root of a number using a tennis shoe and a watch? *Why Cats Land on Their Feet* shows you how, and all that's required is a familiarity with basic high-school mathematics. This lively collection also features an appendix that explains all physical concepts used in the book, from Newton's laws to the fundamental theorem of calculus.

**Mark Levi** is professor of mathematics at Pennsylvania State University. He is the author of *The Mathematical Mechanic: Using Physical Reasoning to Solve Problems* (see page 54).



*“Why Cats Land on Their Feet is a collection of fun physical puzzles that will be attractive to a wide spectrum of readers, from teachers to those looking simply for good reading and educational entertainment. Levi’s sense of humor and friendly, informal style add to the pleasure of the book. Each of these puzzles, without exception, kept my attention.”*  
—Paul J. Nahin, author of *Number-Crunching: Taming Unruly Computational Problems from Mathematical Physics to Science Fiction*

JUNE

Paper with French folds \$18.95T

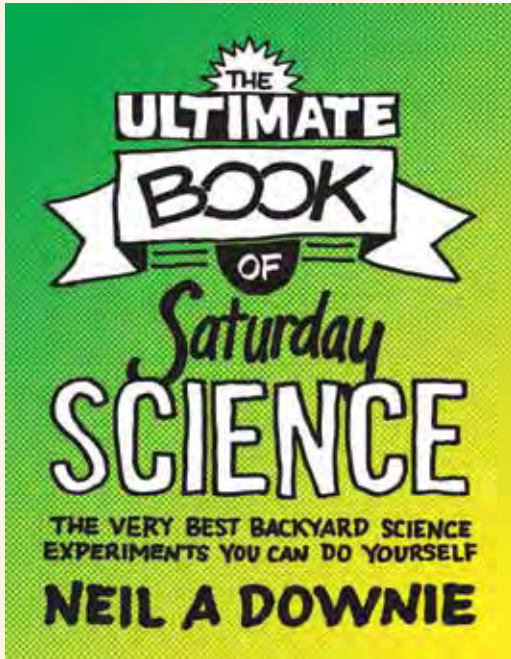
978-0-691-14854-0

184 pages. 96 line illus. 5 1/2 x 8 1/2.

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THE BEST BACKYARD EXPERIMENTS  
FOR HANDS-ON SCIENCE LEARNING



“This is the most extensive collection of project ideas at this level that I know of. Downie gives better ‘how to’ explanations and takes the ideas further than most other books of this kind. *The Ultimate Book of Saturday Science* is a true omnibus.”

—David Willey, University of Pittsburgh at Johnstown

## THE ULTIMATE BOOK OF SATURDAY SCIENCE

The Very Best Backyard Science  
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NEIL A. DOWNIE

*The Ultimate Book of Saturday Science* is Neil Downie’s biggest and most astounding compendium yet of science experiments you can do in your own kitchen or backyard using common household items. It may be the only book that encourages hands-on science learning through the use of high-velocity, air-driven carrots.

Downie, the undisputed maestro of Saturday science, here reveals important principles in physics, engineering, and chemistry through such marvels as the Helevator—a contraption that’s half helicopter, half elevator—and the Rocket Railroad, which pumps propellant up from its own track. The Riddle of the Sands demonstrates why some granular materials form steep cones when poured while others collapse in an avalanche. The Sunbeam Exploder creates a combustible delivery system out of sunlight, while the Red Hot Memory experiment shows you how to store data as heat. Want to learn to tell time using a knife and some butter? There’s a whole section devoted to exotic clocks and oscillators that teaches you how.

*The Ultimate Book of Saturday Science* features more than seventy fun and astonishing experiments that range in difficulty from simple to more challenging. All of them are original, and all are guaranteed to work. Downie provides instructions for each one and explains the underlying science, and also presents experimental variations that readers will want to try.

**Neil A. Downie** is a lead scientist with Air Products and Chemicals, Inc., and visiting professor of multidisciplinary engineering at the University of Surrey. His books include *Vacuum Bazookas*, *Electric Rainbow Jelly*, and *27 Other Saturday Science Projects* (Princeton).

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488 pages. 25 halftones. 130 line illus. 7 x 9.

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