



Physical Sciences, Technology, & Mathematics

2018 • Yale UNIVERSITY PRESS

New

 **Physics and Dance**

EMILY COATES AND SARAH DEMERS

“Dancer Emily Coates and physicist Sarah Demers have collaborated in an illuminating study of art and science, effortlessly blending references to past and present cultures, choreographers, and dance forms, with basic laws of gravity, motion, and energy. By the end, you will never again think of dance without the physics that enables it, and you will never again think of physics without the art that can express it.”—Neil deGrasse Tyson, American Museum of Natural History, and author of *Astrophysics for People in a Hurry*

Available in January 2019

Hardcover 2019 176 pp. 62 b/w illus.

978-0-300-19583-5 \$30.00

 **The Origins of Everything in 100 Pages (More or Less)**

DAVID BERCOVICI

In one hundred pages, more or less, a renowned geophysicist explains how everything everywhere in the universe came to be, from the Big Bang to the dawn of civilization, in a witty and enthralling introduction to cosmology, biology, climate science, evolution, and more.

Paper 2017 152 pp. 12 b/w illus.

978-0-300-23050-5 \$13.00

Void

The Strange Physics of Nothing

JAMES OWEN WEATHERALL

The physics of stuff is familiar to us, but the physics of nothing? Following his *New York Times* best-seller, *The Physics of Wall Street*, James Owen Weatherall explores this fundamental area of modern physics.

FOUNDATIONAL QUESTIONS IN SCIENCE

Paper 2017 224 pp.

978-0-300-23073-4 \$16.00

 **Elementary Particles**

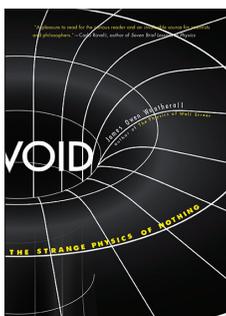
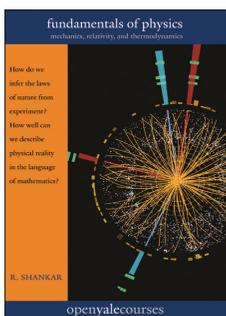
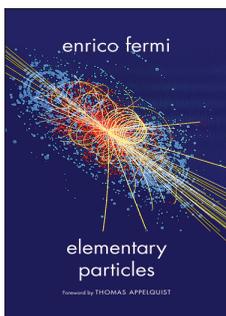
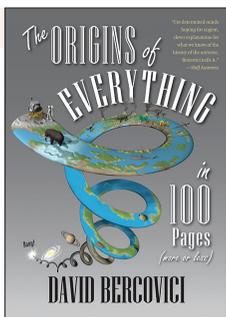
ENRICO FERMI; WITH A FOREWORD BY THOMAS APPELQUIST

Updated with a new foreword, *Elementary Particles* provides an overview for students and scholars of the foundations of particle physics written by one of the field’s greatest contributors.

THE SILLIMAN MEMORIAL LECTURES SERIES

Paper 2012 136 pp.

978-0-300-18318-4 \$20.00



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 **Fundamentals of Physics**

Mechanics, Relativity, and Thermodynamics

R. SHANKAR

Professor Ramamurti Shankar’s contagious enthusiasm for physics is evident in this concise volume based on his popular online course. Shankar explains fundamental concepts from Galileo’s and Newton’s discoveries to current ideas on relativity and quantum mechanics.

THE OPEN YALE COURSES SERIES

Paper 2014 464 pp. 116 b/w illus.

978-0-300-19220-9 \$25.00

 **Fundamentals of Physics II**

Electromagnetism, Optics, and Quantum Mechanics

R. SHANKAR

In this second volume of *Fundamentals of Physics*, Shankar explains essential concepts, including electromagnetism, optics, and quantum mechanics.

THE OPEN YALE COURSES SERIES

Paper 2016 608 pp. 156 b/w illus.

978-0-300-21236-5 \$25.00

 **Radioactive Transformations**

ERNEST RUTHERFORD; WITH A FOREWORD BY FRANK WILCZEK

This new edition of Ernest Rutherford’s historical work, which describes his Nobel Prize-winning radiation experiments, includes a comprehensive foreword that explains how this research helped to usher in twentieth-century nuclear science.

THE SILLIMAN MEMORIAL LECTURES SERIES

Paper 2012 336 pp.

978-0-300-18130-2 \$25.00

 **13.8**

The Quest to Find the True Age of the Universe and the Theory of Everything

JOHN GRIBBIN

A celebrated astronomer and best-selling author points to evidence of science’s elusive “Theory of Everything,” uniting general relativity theory and quantum physics theory, in the age of our universe.

Paper 2017 256 pp. 35 b/w illus.

978-0-300-23063-5 \$20.00

Mapping the Heavens*The Radical Scientific Ideas That Reveal the Cosmos*

PRIYAMVADA NATARAJAN

An astrophysicist introduces all curious readers to the breathtaking discoveries that are transforming our knowledge of the universe—from black holes to dark matter to a host of new planets—and sheds light on the contentious journey of new scientific ideas from discovery to acceptance.

Paper 2017 288 pp. 14 color + 33 b/w illus.
978-0-300-22703-1 **\$16.00**

New

Dispatches from Planet 3*Thirty-Two (Brief) Tales on the Solar System, the Milky Way, and Beyond*

MARCIA BARTUSIAK

A fascinating collection of thirty-two short cosmological essays by an award-winning science writer carries the armchair astronomer to explore the solar system, the universe, the multiverse, and the history of astronomy and celebrate the contributions of pioneering female scientists.

Hardcover 2018 320 pp. 50 b/w illus.
978-0-300-23574-6 **\$26.00**

Einstein's Unfinished Symphony*The Story of a Gamble, Two Black Holes, and a New Age of Astronomy*

MARCIA BARTUSIAK

Astronomers have now verified the last remaining prediction of Einstein's general theory of relativity—vibrations in space-time. Bartusiak traces the discovery of gravitational waves, revealing the brilliance, personalities, and luck required to start a new age of astronomy.

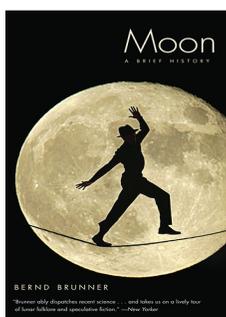
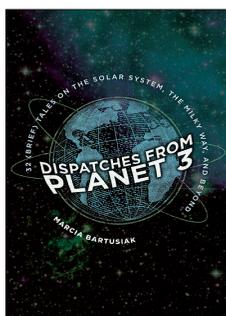
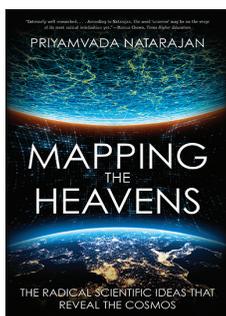
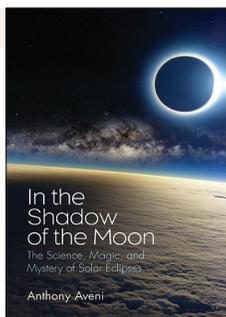
Paper 2017 296 pp. 56 b/w illus.
978-0-300-22339-2 **\$18.00**

Black Hole*How an Idea Abandoned by Newtonians, Hated by Einstein, and Gambled On by Hawking Became Loved*

MARCIA BARTUSIAK

This book recounts the contentious history of the idea of the black hole, considered too impossibly bizarre to exist until astronomical discoveries transformed our understanding of the cosmos.

Paper 2016 256 pp. 27 b/w illus.
978-0-300-21966-1 **\$18.00**

**In the Shadow of the Moon***The Science, Magic, and Mystery of Solar Eclipses*

ANTHONY AVENI

From Stonehenge to Babylonian creation stories to the present day and beyond, astronomer and anthropologist Anthony Aveni weaves together science, culture, myth, and history to provide the essential book for understanding one of nature's grandest spectacles.

Hardcover 2017 328 pp. 32 b/w illus.
978-0-300-22319-4 **\$28.00**

Moon*A Brief History*

BERND BRUNNER

From the acclaimed author of *Bears*, an entertaining, often surprising cultural examination of Earth's moon, through history, science, and literature, from ancient times to the present.

Selected as a Choice Outstanding Academic Title for 2011 in the Astronautics and Astronomy category

Paper 2011 304 pp. 93 b/w illus.
978-0-300-17769-5 **\$18.00**

The Realm of the Nebulae

EDWIN HUBBLE; WITH NEW FOREWORDS BY

ROBERT P. KIRSHNER AND SEAN M. CARROLL

In 1936, Hubble described his principal observations and conclusions in *The Realm of the Nebulae*, which quickly became a classic work. Two new introductory pieces, by Robert P. Kirshner and Sean M. Carroll, explain advances since Hubble's time and his work's foundational importance.

THE SILLIMAN MEMORIAL LECTURES SERIES

Paper 2013 288 pp.
978-0-300-18712-0 **\$24.00**

All These Worlds Are Yours*The Scientific Search for Alien Life*

JON WILLIS

Recent space missions are spurring new excitement over the possibility of extraterrestrial life. In this captivating and accessibly written book, astronomer Jon Willis surveys five plausible scenarios for finding life and asks readers where they would choose to search.

Hardcover 2016 232 pp.
978-0-300-20869-6 **\$30.00**



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Spaceflight in the Shuttle Era and Beyond

Redefining Humanity's Purpose in Space

VALERIE NEAL

The Space Shuttle was described as delivery truck and orbiting science lab, near-Earth station and space explorer, costly disaster and pinnacle of engineering success. Valerie Neal explores these competing depictions and calls for a new vision of spaceflight.

Hardcover 2017 288 pp. 17 color + 23 b/w illus.
978-0-300-20651-7 \$40.00

The Long Space Age

The Economic Origins of Space Exploration from Colonial America to the Cold War

ALEXANDER MACDONALD

An economic historian examines the history of American space exploration to argue that the contemporary rise of privately funded space exploration is a reemergence not a new phenomenon.

Hardcover 2017 272 pp. 4 b/w illus.
978-0-300-21932-6 \$35.00

Into the Black

JPL and the American Space Program, 1976-2004

PETER J. WESTWICK

Since the mid-1970s, spacecraft, satellites, and instruments built by the Jet Propulsion Laboratory in Pasadena have revolutionized our knowledge of the solar system and of Earth itself. This book recounts the extraordinary story of JPL's accomplishments and failures.

Winner of the 2006 Eugene M. Emme Astronautical Literature Award; Winner of the 2008 Gardner-Lasser Aerospace History Literature Award
Paper 2011 416 pp. 24 b/w illus.
978-0-300-18419-8 \$39.00

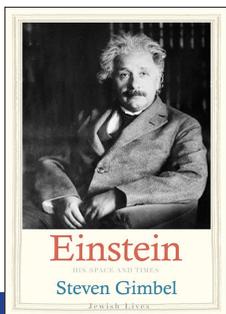
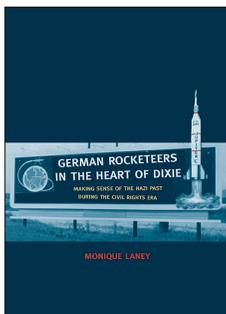
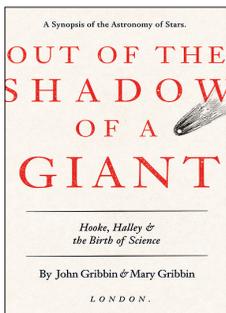
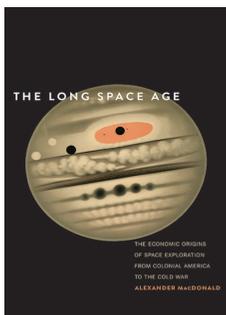
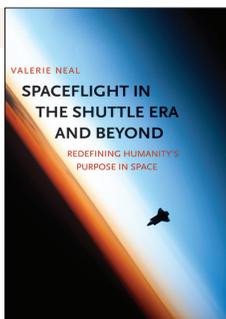
German Rocketeers in the Heart of Dixie

Making Sense of the Nazi Past during the Civil Rights Era

MONIQUE LANEY

This thought-provoking study recalls the post-World War II integration of German rocket specialists and their families into a small Alabama community and examines how the histories of German Nazism and Jim Crow in the American South become entangled in narratives about the past.

Winner of the 2016 Gardner-Lasser Aerospace History Literature Award
Cloth 2015 320 pp. 5 b/w illus.
978-0-300-19803-4 \$35.00



My Dear Li

Correspondence, 1937-1946

WERNER AND ELISABETH HEISENBERG; EDITED BY ANNA MARIA HIRSCH-HEISENBERG; TRANSLATED BY IRENE HEISENBERG

This compelling selection of more than 300 letters exchanged between Nobel Prize-winning physicist Werner Heisenberg and his wife, Elisabeth, during World War II sheds light on their devoted relationship and on his much-debated wartime work as Germany's director of atomic research.
Hardcover 2016 328 pp. 20 b/w illus.
978-0-300-19693-1 \$40.00

Out of the Shadow of a Giant

Hooke, Halley, and the Birth of Science

JOHN GRIBBIN AND MARY GRIBBIN

John and Mary Gribbin argue persuasively that, even without Newton, science would have made a great leap forward in the second half of the seventeenth century, headed by the two extraordinary figures of Robert Hooke and Edmond Halley.
Hardcover 2017 328 pp. 24 b/w illus.
978-0-300-22675-1 \$32.50

Einstein

His Space and Times

STEVEN GIMBEL

A fascinating new biography of Albert Einstein presents the great man of science as a politically engaged individual of his times, demonstrating how his theories and scientific innovations emerged as a direct result of his life, his principles, and the volatile times in which he lived.

JEWISH LIVES

Cloth 2015 208 pp. 1 b/w illus.
978-0-300-19671-9 \$25.00

Boyle

Between God and Science

MICHAEL HUNTER

This extraordinary work is the first biography in a generation of one of the world's most important scientists, Robert Boyle—a pioneer of the modern experimental method, the champion of a novel mechanical view of nature, and a penetrating thinker regarding philosophical and theological issues related to science.

Winner of the 2011 Roy G. Neville Prize; Winner of the 2011 Samuel Pepys Award
Paper 2010 pp.
978-0-300-16931-7 \$30.00

Artisanal Enlightenment

Science and the Mechanical Arts in Old Regime France

PAOLA BERTUCCI

What would the Enlightenment look like from the perspective of *artistes*, who fashioned themselves in contrast to theory-inclined savants and routine-bound craftsmen? Making a radical change of historical protagonists, Paola Bertucci places the mechanical arts and the world of making at the heart of the Enlightenment. Hardcover 2017 312 pp. 37 b/w illus. 978-0-300-22741-3 **\$40.00**

Fake Silk

The Lethal History of Viscose Rayon

PAUL DAVID BLANC

When a new technology makes people ill, how high does the body count have to go before protective steps are taken? This disturbing book explores the century-long history of “fake silk,” used in the production of rayon and cellophane, and the terrible toll it continues to take on workers’ health and the environment. Hardcover 2016 328 pp. 978-0-300-20466-7 **\$40.00**

Toxic Bodies

Hormone Disruptors and the Legacy of DES

NANCY LANGSTON

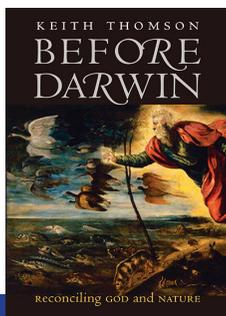
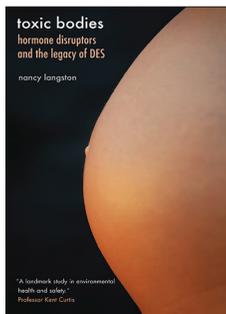
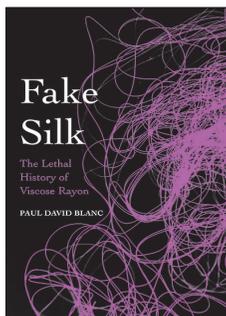
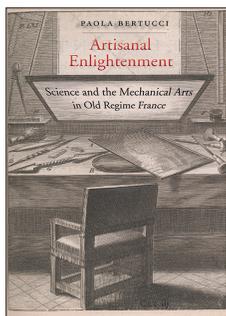
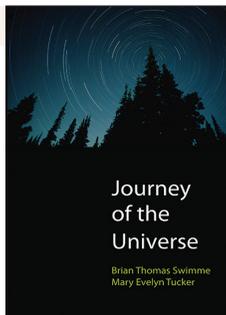
In this gripping book, Nancy Langston shows the U.S. government has largely failed to regulate hormone disruptors such as DES (diethylstilbestrol) and the industry has skillfully manipulated scientific uncertainty to delay regulation. Paper 2011 256 pp. 11 b/w illus. 978-0-300-17137-2 **\$22.00**

Database of Dreams

The Lost Quest to Catalog Humanity

REBECCA LEMOV

An acclaimed science historian uncovers the fascinating story of a Harvard psychologist who—just a few years before the dawn of the digital age—assembled a vast, now-lost sociological database that captured the dreams, stories, and innermost thoughts of a varied range of the world’s peoples. Cloth 2015 368 pp. 978-0-300-20952-5 **\$35.00**



Journey of the Universe

BRIAN THOMAS SWIMME AND MARY EVELYN TUCKER

This exhilarating book explores the history of the universe from diverse perspectives—the sciences and the humanities—and offers a profoundly hopeful view of humankind’s opportunity to create a vibrant future for Earth and all its inhabitants.

Paper 2014 192 pp.
978-0-300-20943-3 **\$15.00**

Before Darwin

Reconciling God and Nature

KEITH THOMSON

Long before Darwin published his *On the Origin of Species*, scientific discoveries and developments threatened religious beliefs based on the literal truth of the Bible. This book looks at these conflicts through the writings of Enlightenment thinkers. Paper 2007 336 pp. 33 b/w illus. 978-0-300-12600-6 **\$20.00**

An Empire of Ice

Scott, Shackleton, and the Heroic Age of Antarctic Science

EDWARD J. LARSON

Published to coincide with the centenary of the first expeditions to reach the South Pole, this riveting account of the Heroic Age of Antarctic exploration by Pulitzer Prize-winning historian Edward Larson restores these expeditions’ status as grand endeavors of science.

Paper 2012 344 pp. 54 b/w illus.
978-0-300-18821-9 **\$16.00**

The Computer and the Brain

JOHN VON NEUMANN; WITH A FOREWORD BY RAY KURZWEIL

In his foreword to this new edition of John von Neumann’s classic exploration of the analogies between computing machines and the human brain, Ray Kurzweil—a futurist famous for his own musings on the relationship between technology and consciousness—places von Neumann’s work in a historical context and shows how it remains relevant today.

THE SILLIMAN MEMORIAL LECTURES SERIES
Paper 2012 136 pp.
978-0-300-18111-1 **\$16.50**

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The Mathematics Lover's Companion

Masterpieces for Everyone

EDWARD SCHEINERMAN

This lively book presents an enticing invitation to nonmathematicians: to discover the pleasures of math and to explore intriguing mathematical ideas. The author presents an array of “masterpieces of mathematics” and shows convincingly that math is far more fascinating than just “finding x.”

Hardcover 2017 296 pp. 106 b/w illus.
978-0-300-22300-2 **\$28.00**

Fractal Worlds

Grown, Built, and Imagined

MICHAEL FRAME AND AMELIA URRY

A remarkable journey into the fascinating world of fractals by a poet and a mathematician, close collaborator with Benoît Mandelbrot, originator of the groundbreaking Mandelbrot set and “father of fractal geometry.”

Paper 2016 536 pp. 328 b/w illus.
978-0-300-19787-7 **\$25.00**

Beautiful, Simple, Exact, Crazy

Mathematics in the Real World

APOORVA KHARE AND ANNA LACHOWSKA

Two master teachers affirm the power, beauty, and relevance of mathematics in a fun and quantitative world tour that introduces basic concepts and explores their natural and practical applications.

Paper 2015 480 pp. 72 b/w illus.
978-0-300-19089-2 **\$20.00**

The Theory That Would Not Die

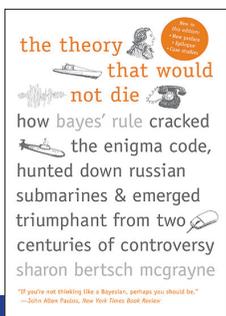
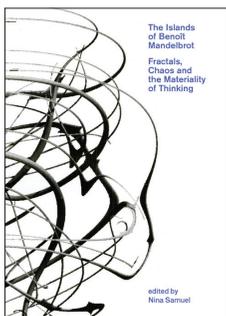
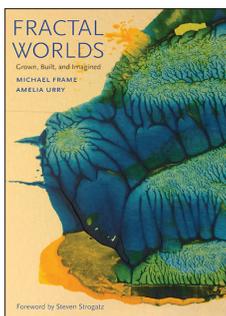
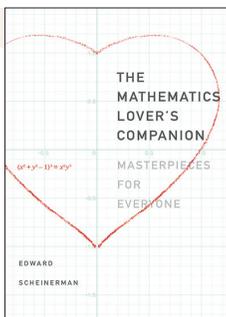
How Bayes' Rule Cracked the Enigma Code, Hunted Down Russian Submarines, and Emerged Triumphant from Two Centuries of Controversy

SHARON BERTSCH MCGRAYNE

In this lively narrative history, noted science writer Sharon Bertsch McGrayne recounts the discovery of Bayes' rule and reveals how this seemingly simple mathematical theorem ignited one of the greatest scientific controversies of all time.

Editor's Choice, New York Times Book Review

Paper 2012 360 pp.
978-0-300-18822-6 **\$16.00**



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The Islands of Benoît Mandelbrot
Fractals, Chaos, and the Materiality of Thinking

NINA SAMUEL

A fascinating exploration of the role of fractals and other scientific imagery in art history and the development of ideas.

DISTRIBUTED FOR THE BARD GRADUATE CENTER, NY
Paper 2012 pp. 160 color + b/w illus.
978-0-300-18643-7 **\$40.00**

Now available in paperback

Financial Decision-Making for Engineers

COLIN K. DRUMMOND

A much-needed textbook designed to help engineering and science students learn basic management and accounting strategies. Written by a Case Western Reserve educator and engineer and informed by proven instruction techniques and industry experience, the book provides science, technology, and engineering students a foundation for future success as business leaders.

Paper 2018 400 pp. 85 b/w illus.
978-0-300-19218-6 **\$45.00**

Truth or Beauty

Science and the Quest for Order

DAVID ORRELL

In this sweeping book applied mathematician and popular author David Orrell questions the promises and pitfalls of associating beauty with truth, showing how ideas of mathematical elegance have inspired—and have sometimes misled—scientists attempting to understand our universe.

Cloth 2012 356 pp. 20 b/w illus.
978-0-300-18661-1 **\$35.00**

Our e-book editions are available from most major e-book stores, including the Amazon Kindle store, B&N's Nook store, Google editions, Kobo, and Sony.

New

Custodians of the Internet*Platforms, Content Moderation, and the Hidden Decisions That Shape Social Media*

TARLETON GILLESPIE

What happens when tools that Facebook, Twitter, and other platforms use to curb trolling and ban hate instead censor the conversations you need to hear? An award-winning expert on social media offers a rare look into how social media platforms police their content and the effects their policies have on public discourse.

Hardcover 2018 296 pp. 14 b/w illus.
978-0-300-17313-0 **\$30.00**

It's Complicated*The Social Lives of Networked Teens*

DANAH BOYD

Does it mean anything new to grow up in a networked world? A leading youth and technology expert offers original research on teens' use of social media, the myths that frighten caring adults, and how young people form communities.

Winner of the 2015 Educators Book Award given by the Delta Kappa Gamma Society International
Paper 2015 296 pp.

978-0-300-19900-0 **\$15.00**

The Electronic Silk Road*How the Web Binds the World Together in Commerce*

ANUPAM CHANDER

An expert in cyber-law explores how global trade on the Internet is now regulated, why regulation matters to individuals as well as nations, and how better regulatory laws can encourage international trade while protecting national and human rights.

Cloth 2013 296 pp. 4 b/w illus.

978-0-300-15459-7 **\$30.00**

Plugged In*How Media Attract and Affect Youth*

PATTI M. VALKENBURG AND JESSICA TAYLOR PIOTROWSKI

The complex relationship between children and the media is explored in an illuminating study that looks at both the sunny and the dark side of media use by youths from birth through adolescence in a digital age of selfies, Twitter, Facebook, and Instagram.

Hardcover 2017 344 pp. 15 b/w illus.

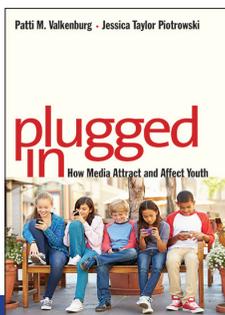
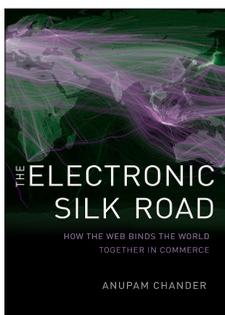
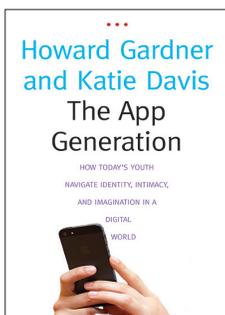
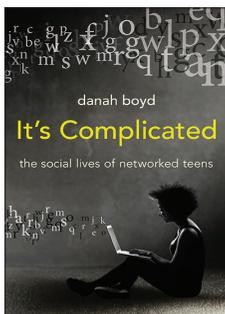
978-0-300-21887-9 **\$35.00**

Custodians of the Internet

platforms, content moderation, and the hidden decisions that shape social media



Tarleton Gillespie

**The App Generation***How Today's Youth Navigate Identity, Intimacy, and Imagination in a Digital World*

HOWARD GARDNER AND KATIE DAVIS; WITH A NEW PREFACE

In this riveting exploration of the power of apps to shape today's young people, the authors investigate how digital culture influences—for better or worse—three critical areas of adolescent life: identity, intimacy, and imagination.

Paper 2014 272 pp. 3 b/w illus.

978-0-300-20934-1 **\$16.00**

The Future of the Internet—And How to Stop It

JONATHAN ZITTRAIN

Jonathan Zittrain's extraordinary book pieces together the engine that has catapulted the Internet ecosystem into the prominence it has today—and explains that it is sputtering precisely because of its runaway success.

Paper 2009 352 pp. 6 b/w illus.

978-0-300-15124-4 **\$17.00**

The Wealth of Networks*How Social Production Transforms Markets and Freedom*

YOCHAI BENKLER

In this important book on the new information economy and our socio-political future, Yochai Benkler discusses the legal and policy issues that confront us and warns that the Internet's promise of greater individual freedom, cultural diversity, political discourse, and justice is by no means guaranteed unless we make the right decisions now.

Winner of the 2006 Donald McGannon Award;
Winner of the American Political Science

Association's 2007 Don K. Price Award; Winner
of the 2008 CITASA Book Award

Paper 2007 528 pp. 10 b/w illus.

978-0-300-12577-1 **\$25.00**

New

Delayed Response

The Art of Waiting from the Ancient to the Instant World

JASON FARMAN

Exploring seven eras and objects of waiting—including pneumatic mail tubes in New York, Elizabethan wax seals, and Aboriginal Australian message sticks—Farman offers a new mindset for waiting. In a rebuttal to the demand for instant communication, Farman makes a powerful argument for why good things can come to those who wait.

Hardcover 2018 240 pp. 30 b/w illus.
978-0-300-22567-9 **\$28.00**

New

Fiber

The Coming Tech Revolution—and Why America Might Miss It

SUSAN CRAWFORD

The world of 5G will be as different from what came before as the world after the advent of electricity. Susan Crawford reveals how the corporations that control U.S. cable and Internet access use their tremendous lobbying power to prevent competition, and how some municipalities are fighting to bring the next tech revolution to their communities.

Available in January 2019
Hardcover 2019 272 pp.
978-0-300-22850-2 **\$30.00**

(Not) Getting Paid to Do What You Love

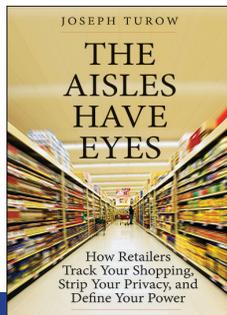
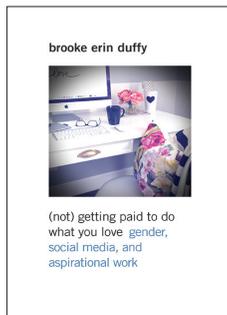
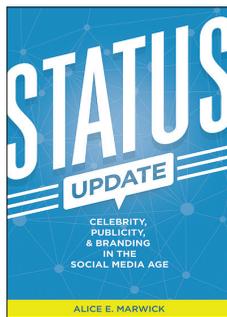
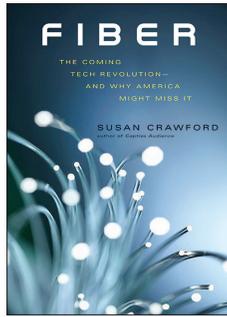
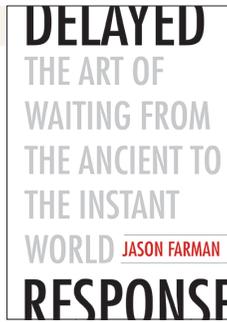
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An illuminating book that explores the emergent politics of the social media economy and the contested nature of female entrepreneurship. Though young women are flocking to blogs, Instagram, and YouTube in pursuit of independent work, many end up working for free as corporate brands compensate in the always-deferred promise of “exposure.”

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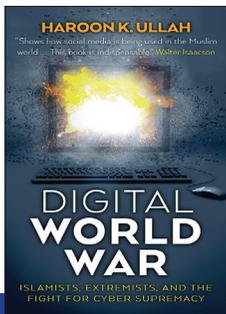
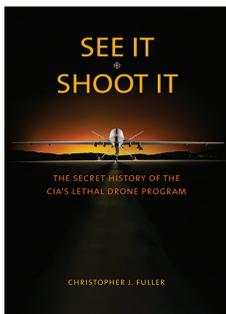
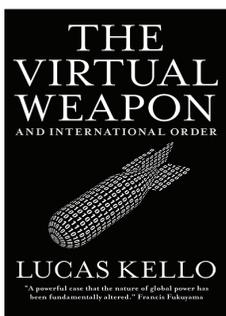
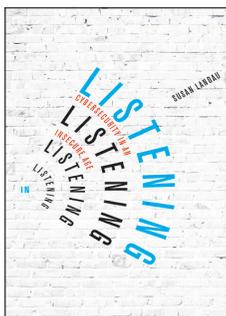
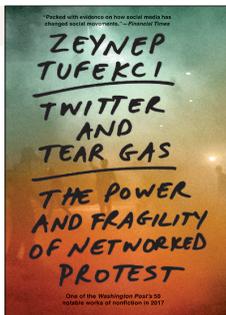
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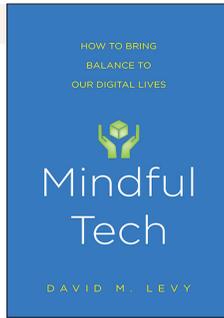
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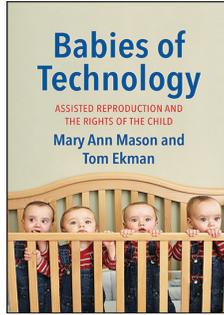
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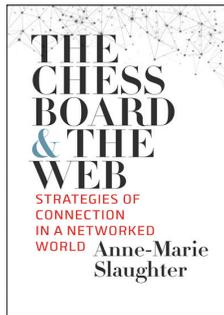
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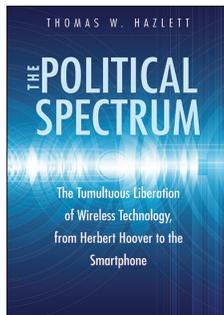
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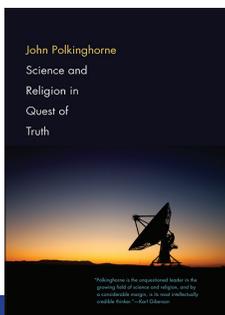
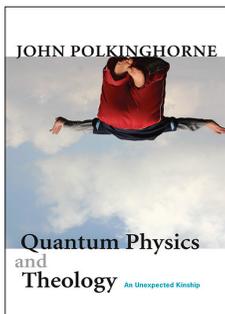
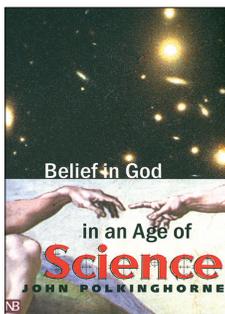
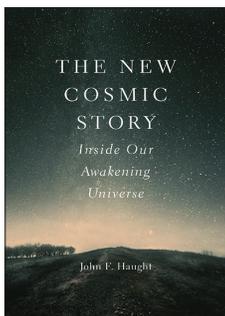
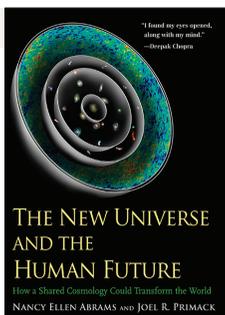
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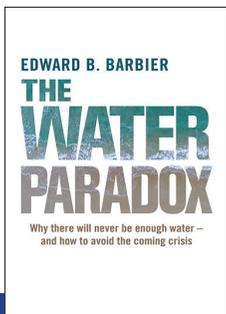
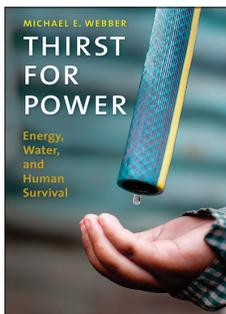
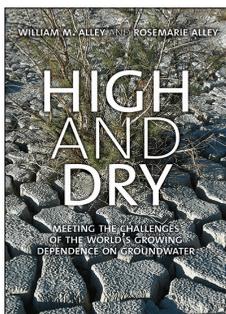
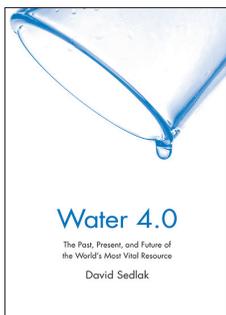
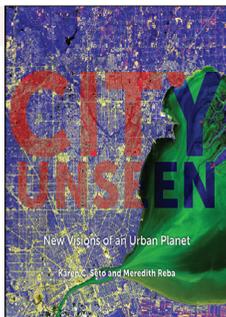
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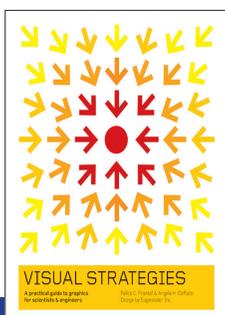
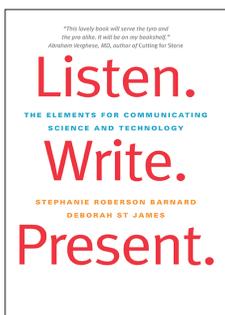
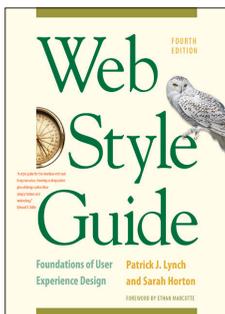
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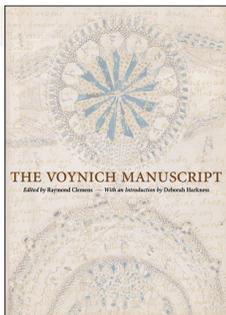
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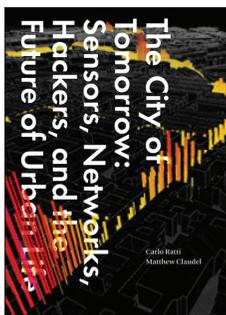
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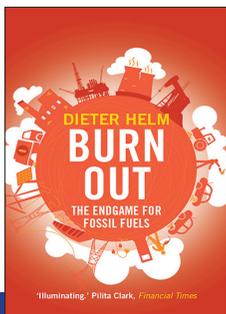
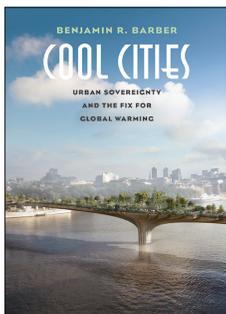
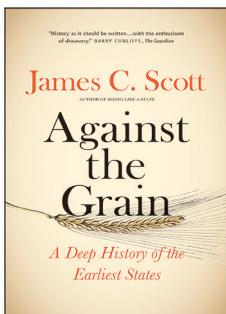
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