

The Planets Dava Sobel

Jennifer Kahn's "Stripped for Parts" was selected as the lead story of this year's Best American Science Writing because, as Dava Sobel, best-selling author of *Longitude* and *Galileo's Daughter*, reveals, "it begins with one of the most arresting openings I have ever read." In "Columbia's Last Flight," William Langewiesche recounts the February 1, 2003, space shuttle tragedy, along with the investigation into the nationwide complacency that brought the ship down. K. C. Cole's "Fun with Physics" is a profile of astrophysicist Janet Conrad that blends her personal life with professional activity. In "Desperate Measures," the doctor and writer Atul Gawande profiles the surgeon Francis Daniels Moore, whose experiments in the 1940s and '50s pushed medicine harder and farther than almost anyone had contemplated. Also included is a poem by the legendary John Updike, "Mars as Bright as Venus." The collection ends with Diane Ackerman's "ebullient" essay "We Are All a Part of Nature." Together these twenty-three articles on a wide range of today's most current topics in science -- from biology, physics, biotechnology, and astronomy, to anthropology, genetics, evolutionary theory, and cognition, represent the full spectrum of scientific writing from America's most prominent science authors, proving once again that "good science writing is evidently plentiful" (*Scientific American*).

There are four men whose life's work helped free science from the straitjacket of religion. Three of the four - Nicolaus Copernicus, Galileo Galilei, and Charles Darwin - are widely heralded for their breakthroughs. The fourth, James Hutton, is comparatively unknown. A Scottish gentleman farmer, Hutton's observations on his small tract of land led him to a theory that directly contradicted biblical claims that the Earth was only 6,000 years old. Telling the story not only of Hutton, but of the rich intellectual milieu of the Scottish Enlightenment, which brought together some of the greatest thinkers of the age - from David Hume and Adam Smith to James Watt and Erasmus Darwin - *The Man Who Found Time* is an enlightening, engaging narrative about a little-known man and the science he established.

Using her deep knowledge, her skills as a storyteller, and her imagination, Dava Sobel illuminates one of history's most significant and far-reaching meetings. In the spring of 1539, a young German mathematician--Georg Joachim Rheticus--journeyed hundreds of miles to northern Poland to meet the legendary, elderly cleric and reluctant astronomer Nicolaus Copernicus. Some two decades earlier, Copernicus had floated the mind-boggling theory that the Sun, not the Earth, was stationary at the center of the universe, and he was rumored to have crafted a book that could prove it. Though exactly what happened between them can never be known, Rheticus shepherded Copernicus's great work into production and *De revolutionibus orbium coelestium* ultimately changed the course of human understanding. Dava Sobel imagines their dramatic encounter, and with wit and erudition gives them personality. Through clever and dramatic dialogue, she brings alive the months Rheticus and Copernicus spent together--the one a heretical Lutheran, the other a free-thinking Catholic--and in the process illuminates the historic tension between science and religion. An introduction by Dava Sobel will set the stage, putting the scenes in historical context, and an afterword will describe what happened after Copernicus's book was published detailing the impact it had on science and on civilization.

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Argues that exercise is the best therapy for backache, discusses motivation, recommends specific exercises, and covers yoga, meditation, and life-style changes

Building from his acclaimed anthology *Tales of Two Americas*, beloved writer and editor John Freeman draws together a group of our greatest writers from around the world to help us see how the environmental crisis is hitting some of the most vulnerable communities where they live. In the past five years, John Freeman, previously editor of *Granta*, has launched a celebrated international literary magazine, *Freeman's*, and compiled two acclaimed anthologies that deal with income inequality as it is experienced. In the course of this work, one major theme came up repeatedly: Climate change is making already dire inequalities much worse, devastating further the already devastated. But the problems of climate change are not restricted to those from the less developed world. Galvanized by his conversations with writers and activists around the world, Freeman engaged with some of today's most eloquent storytellers, many of whom hail from the places under the most acute stress--from the capital of Burundi to Bangkok, Thailand. The response has been extraordinary. Margaret Atwood conjures with a dys-topian future in a remarkable poem. Lauren Groff whisks us to Florida; Edwidge Danticat to Haiti; Tahmima Anam to Bangladesh; Yasmine El Rashidi to Egypt, while Eka Kurniawan brings us to Indonesia, Chinelo Okparanta to Nigeria, and Anuradha Roy to the Himalayas in the wake of floods, dam building, and drought. This is a literary all-points bulletin of fiction, essays, poems, and reportage about the most important crisis of our times.

Longlisted for the 2015 PEN/E.O. Wilson Literary Science Writing Award Short-listed for Physics World's Book of the Year The Sunday Times (UK) Best Science Book of 2014 A Publishers Weekly Top 10 Science Book of Fall 2014 An NBC News Top Science and Tech Book of 2014 A Politics & Prose 2014 Staff Pick In the sixteenth century, Nicolaus Copernicus dared to go against the establishment by proposing that Earth rotates around the Sun. Having demoted Earth from its unique position in the cosmos to one of mediocrity, Copernicus set in motion a revolution in scientific thought. This perspective has influenced our thinking for centuries. However, recent evidence challenges the Copernican Principle, hinting that we do in fact live in a special place, at a special time, as the product of a chain of unlikely events. But can we be significant if the Sun is still just one of a billion trillion stars in the observable universe? And what if our universe is just one of a multitude of others-a single slice of an infinity of parallel realities? In *The Copernicus Complex*, the renowned astrophysicist Caleb Scharf takes us on a scientific adventure, from tiny microbes within the Earth to distant exoplanets, probability theory, and beyond, arguing that there is a solution to this contradiction, a third way of viewing our place in the cosmos, if we weigh the evidence properly. As Scharf explains, we do occupy an unusual time in a 14-billion-year-old universe, in a somewhat unusual type of solar system surrounded by an ocean of unimaginable planetary diversity: hot Jupiters with orbits of less than a day, planet-size rocks spinning around dead stars, and a wealth of alien super-Earths. Yet life here is built from the most common chemistry in the universe, and we are a snapshot taken from billions of years of biological evolution. Bringing us to the cutting edge of scientific discovery, Scharf shows how the answers to fundamental questions of existence will come from embracing the peculiarity of our circumstance without denying the

Copernican vision. With characteristic verve, Scharf uses the latest scientific findings to reconsider where we stand in the balance between cosmic significance and mediocrity, order and chaos. Presenting a compelling and bold view of our true status, The Copernicus Complex proposes a way forward in the ultimate quest: determining life's abundance, not just across this universe but across all realities.

Join us on the most amazing voyage imaginable: travel over 13.7-billion light years and experience the awesome sights, spectacles and breathtaking scale of the cosmos. Along the way you will visit planets, moons, asteroids, stars, nebulae, white dwarfs, black holes, dark matter and other phenomena that populate the heavens. Data streams, digital readouts and unique graphic interfaces, such as 'Image Enhance', 'Atmosphere Analysis' and 'Surface Detail' provide intrepid cosmic voyagers with a wealth of facts, information and data about all the celestial bodies they encounter - as well as some of the deadly hazards that lurk in outer space and how to avoid them. Printed in dramatic over-sized format and packed with more than 300 of science's most spectacular photographs, Across the Cosmos is quite simply the biggest, best and most exciting children's space book ever published. Across the Cosmos is specifically designed and written for children aged 7+ years. The sections are: Across the Solar System Through the Milky Way Beyond our Galaxy

Traces the story of the reclusive sixteenth-century cleric who introduced the revolutionary idea that the Earth orbits the sun, describing the dangerous forces and complicated personalities that marked the publication of Copernicus's findings.

An analysis of the scientific and social impact of the Polish astronomer's pivotal sixteenth-century work traces how his challenge to beliefs about an earth-centric solar system had a profound influence on the ways in which humanity understands itself and the universe. 20,000 first printing.

Describes the forty-year effort of John Harrison to invent the chronometer, the first instrument able to keep accurate time for navigational purposes.

By 1514, the reclusive cleric Nicolaus Copernicus had written and hand-copied an initial outline of his heliocentric theory - in which he defied common sense and received wisdom to place the sun, not the earth, at the center of our universe, and set the earth spinning among the other planets. Over the next two decades, Copernicus expanded his theory through hundreds of observations, while compiling in secret a book-length manuscript that tantalized mathematicians and scientists throughout Europe. For fear of ridicule, he refused to publish. In 1539, a young German mathematician, Georg Joachim Rheticus, drawn by rumors of a revolution to rival the religious upheaval of Martin Luther's Reformation, traveled to Poland to seek out Copernicus. Two years later, the Protestant youth took leave of his aging Catholic mentor and arranged to have Copernicus's manuscript published, in 1543, as *De revolutionibus orbium coelestium* (On the Revolutions of the Celestial Spheres) - the book that forever changed humankind's place in the universe. In her elegant, compelling style, Dava Sobel chronicles, as nobody has, the conflicting personalities and extraordinary discoveries that

shaped the Copernican Revolution. At the heart of the book is her play *And the Sun Stood Still*, imagining Rheticus's struggle to convince Copernicus to let his manuscript see the light of day. As she achieved with her bestsellers *Longitude* and *Galileo's Daughter*, Sobel expands the bounds of narration, giving us an unforgettable portrait of scientific achievement, and of the ever-present tensions between science and faith.

In this novel in the New York Times bestselling *Bibliophile Mystery* series, San Francisco book-restoration expert Brooklyn Wainwright's latest project is for the birds, but it may have her running for her life. . . . Brooklyn's friend runs the Covington Library, which is hosting an exhibit featuring John James Audubon's massive masterpiece, *Birds of America*. During the gala celebrating the book, she is approached by Jared Mulrooney, the president of the Bay Area Birdwatchers Society, to repair a lesser known book of Audubon drawings. At the same party, Brooklyn is flying high after she's asked to refurbish a rare copy of *Poor Richard's Almanack* when Mulrooney's body is discovered in the library. Soon more troubles ruffle Brooklyn's feathers. Her parents pop in for a visit with an unsavory friend in tow, and there's a strange man on her tail. With danger beginning to circle Brooklyn's every move, it's clear she must find answers before things really go south. . . .

After the huge national and international success of '*Longitude*' and '*Galileo's Daughter*', Dava Sobel tells the human story of the nine planets of our solar system. This groundbreaking new work traces the 'lives' of each member of our solar family, from myth and history, astrology and science fiction, to the latest data from the modern era's robotic space probes. Whether revealing what hides behind Venus's cocoon of acid clouds, describing Neptune's complex beauty, or capturing first-hand the excitement at the Jet Propulsion Laboratory when the first pictures from Cassini at Saturn were recently beamed to earth, Dava Sobel's unique tour of the solar system is filled with fascination and beauty. In lyrical prose interspersed with poems by Tennyson, Blake and others, '*The Planets*' gives a breathtaking, intimate view of those heavenly bodies that have captured the imagination since humanity's first glimpse of the glittering night skies. Timely and timeless, '*The Planets*' will engage and delight as it unravels the mysteries of the cosmos. It is of infinite relevance to this age in which new planets are being discovered elsewhere in our galaxy.

The acclaimed author of *In Search of Schrödinger's Cat* searches for life on other planets Are we alone in the universe? Surely amidst the immensity of the cosmos there must be other intelligent life out there. Don't be so sure, says John Gribbin, one of today's best popular science writers. In this fascinating and intriguing new book, Gribbin argues that the very existence of intelligent life anywhere in the cosmos is, from an astrophysicist's point of view, a miracle. So why is there life on Earth and (seemingly) nowhere else? What happened to make this planet special? Taking us back some 600 million years, Gribbin lets you experience the series of unique cosmic events that were responsible for our unique

form of life within the Milky Way Galaxy. Written by one of our foremost popular science writers, author of the bestselling *In Search of Schrödinger's Cat* Offers a bold answer to the eternal question, "Are we alone in the universe?" Explores how the impact of a "supercomet" with Venus 600 million years ago created our moon, and along with it, the perfect conditions for life on Earth From one of our most talented science writers, this book is a daring, fascinating exploration into the dawning of the universe, cosmic collisions and their consequences, and the uniqueness of life on Earth.

When she was 13, Virginia Galilei, eldest daughter of the great scientist Galileo, was placed by her father in a convent near him in Florence and took the name Suor Maria Celeste. Unable to see him except on his occasional visits, she wrote him continually, as her 124 surviving letters (which Galileo kept) attest. Now, for the first time, all of these letters are reproduced in English, translated by Dava Sobel, and in their original Italian, and Ms. Sobel has also written an introduction and annotations placing the letters in historical context. The 124 letters span only a decade of Maria Celeste's 33 years. In that dramatic period, a pope came to power who battled the Protestant Reformation; the Thirty Years' War embroiled all of Europe; the bubonic plague erupted across Italy; and a new philosophy of science, promulgated most forcefully by Galileo himself, threatened to overturn the order of the universe. Maria Celeste's evocative, beautifully written letters touch on all of these situations, but they dwell in the small details of everyday life; and though Galileo's letters to her have not survived, it is clear from hers that he answered every one. Especially for those who have read Ms. Sobel's *Galileo's Daughter*, but even for those who haven't, Maria Celeste's letters provide an indelible chronicle of convent life in the early 17th century, a memorable portrait of deep affection between a famous father and his daughter, and fascinating insight into Galileo himself.

Longitude, Dava Sobel's no.1 bestseller, is the elegant biography of the lone genius who solved the greatest scientific problem of his times. With new material from Dava Sobel and William Andrewes, and illustrated with over 200 integrated photographs, *The Illustrated Longitude* is the essential book for everyone who fell in love with John Harrison's story and wants to know more. Anyone alive in the 18th century would have known that 'the longitude problem' was the thorniest scientific dilemma of the day -- and had been for centuries. Lacking the ability to measure their longitude, sailors throughout the great ages of exploration had been literally lost at sea as soon as they lost sight of land. The scientific establishment throughout Europe -- from Galileo to Sir Isaac Newton -- had mapped the heavens in its certain pursuit of a celestial answer. In stark contrast, one man, John Harrison, dared to imagine a mechanical solution. *The Illustrated Longitude* is a fascinating history of astronomy, navigation and clockmaking. Lavishly produced with over 200 illustrations, *The Illustrated Longitude* has much new material to help the reader learn more of John Harrison's extraordinary story an

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Presents a biography of the scientist through the surviving letters of his illegitimate daughter Maria Celeste, who wrote him from the Florence convent where she lived from the age of thirteen.

The Economist #1 New York Times bestselling author Dava Sobel returns with a captivating, little-known true story of women in science.

A National Bestseller, a New York Times Notable Book, and an Entertainment Weekly Best Book of the Year from the author of Extra Life "By turns a medical thriller, detective story, and paean to city life, Johnson's account of the outbreak and its modern implications is a true page-turner." —The Washington Post "Thought-provoking." —Entertainment Weekly It's the summer of 1854, and London is just emerging as one of the first modern cities in the world. But lacking the infrastructure-garbage removal, clean water, sewers-necessary to support its rapidly expanding population, the city has become the perfect breeding ground for a terrifying disease no one knows how to cure. As the cholera outbreak takes hold, a physician and a local curate are spurred to action-and ultimately solve the most pressing medical riddle of their time. In a triumph of multidisciplinary thinking, Johnson illuminates the intertwined histories of the spread of disease, the rise of cities, and the nature of scientific inquiry, offering both a riveting history and a powerful explanation of how it has shaped the world we live in.

Dava Sobel's *The Glass Universe* will be available from Viking in December 2016 With her bestsellers *Longitude* and *Galileo's Daughter*, Dava Sobel introduced readers to her rare gift for weaving complex scientific concepts into a compelling narrative. Now Sobel brings her full talents to bear on what is perhaps her most ambitious topic to date-the planets of our solar system. Sobel explores the origins and oddities of the planets through the lens of popular culture, from astrology, mythology, and science fiction to art, music, poetry, biography, and history. Written in her characteristically graceful prose, *The Planets* is a stunningly original celebration of our solar system and offers a distinctive view of our place in the universe. * A New York Times extended bestseller * A Featured Alternate of the Book-of-the-Month Club, History Book Club, Scientific American Book Club, and Natural Science Book Club * Includes 11 full-color illustrations by artist Lynette R. Cook "[The Planets] lets us fall in love with the heavens all over again." -The New York Times Book Review "Playful . . . lyrical . . . a guided tour so imaginative that we forget we're being educated as we're being entertained." -Newsweek " [Sobel] has outdone her extraordinary talent for keeping readers enthralled. . . . *Longitude* and *Galileo's Daughter* were exciting enough, but *The Planets* has a charm of its own . . . A splendid and enticing book." -San Francisco Chronicle "A sublime journey. [Sobel's] writing . . . is as bright as the sun and its thinking as star-studded as the cosmos." -The Atlanta Journal-Constitution "An incantatory serenade to the Solar System. Grade A-" -Entertainment Weekly "Like Sobel's [*Longitude* and *Galileo's Daughter*] . . . [*The Planets*] combines masterful storytelling with clear, engaging explanations of the essential scientific facts." -Physics World

While Galileo Galilei was under house arrest, accused of heresy for his claim that the earth revolved around the sun, his daughter Virginia, a cloistered nun, proved to be her father's greatest source of strength through the difficult years of his trial and persecution. Winner of the Christopher Award and named a Notable Book of the Year by the "New York Times". Illustrations.

Since time immemorial, the nocturnal skies have mesmerized people, and heavenly bodies have inspired the imaginations of artists, poets, and scientists. This book showcases the superstars of the firmament and universe in sumptuous illustrations featuring paintings, sculpture, drawings, watercolours, prints, as well as plates from books, celestial diagrams, and astronomical photography. *Cosmos: The Art and Science of the Universe* charts the human love affair with the heavens in art and astronomy, based on sound science and insightful art and cultural history. While its illustrations are thrilling and seductive, the book also recounts the fascinating story about the quest to discover the mysteries of the universe in ten lively chapters. Embellished with new information, interpretations, and amusing anecdotes, the authors weave a rich tapestry about the interconnections in the cosmos and the efforts to understand them. A stunning book that unveils the beauty of the cosmos and its compelling story. The biggest and best ever reproduction of the Space Age's most remarkable images The magnificent vault of stars emblazoning Earth's night skies are but an infinitesimal fraction of the hundreds of billions that inhabit our galaxy - and there are at least as many galaxies in the universe as there are stars in the Milky Way. *Cosmos* makes sense of this dizzying celestial panorama by exploring it one step at a time, illustrating the planets, moons, stars, nebulae, white dwarfs, black holes and other exotica that populate the heavens with some of science's most spectacular photographs. The book opens with an orbital survey of planet Earth, before venturing into the solar system heading for interstellar space and the heart of our galaxy. As the journey unfolds, the rhythms of stellar life emerge: we pass through dark clouds of dust and gas ablaze with newly smelted stars and we witness dying stars bloom and fade as planetary nebulae, or tear themselves apart as supernovae. Having crossed the Milky Way, we enter intergalactic space. Out here we watch the hidden lives of galaxies: we see them flock and cluster, forming massive conglomerations that span millions of light years, visibly warping space with their tremendous gravity. After covering an almost unimaginable 13.4 billion light years, we approach the edge of space and the dawn of time where our voyage must end, but not before we consider how the universe was born, and how it might die. A landmark in popular science publishing, *Cosmos* is a majestic, giant format, account of the ultimate journey - a 13.7-billion-light-year- (or 130-billion-trillion kilometre-) voyage from our home planet to the edge of the universe and the beginning of time. Illustrated with 450 images of staggering beauty. Astronomers have recently discovered thousands of exotic planets that orbit stars throughout our Milky Way galaxy. With his characteristic wit and style, Donald Goldsmith shows how these observations have already broadened our planetary horizons, and tells us what may come next, including the ultimate discovery: life beyond our home planet. From #1 New York Times bestselling author Dava Sobel, the "inspiring" (People), little-known true story of women's landmark contributions to astronomy A New York Times Book Review Notable Book Named one of the best books of the year by NPR, The Economist, Smithsonian, Nature, and NPR's Science Friday Nominated for the PEN/E.O. Wilson Literary Science Writing Award "A joy to read." —The Wall Street Journal In the mid-nineteenth century, the Harvard College Observatory began employing women as calculators, or "human computers," to interpret the observations their male counterparts made via telescope each night. At the outset this group included the wives, sisters, and daughters of the resident astronomers, but soon the female corps included graduates of the new women's colleges—Vassar, Wellesley, and

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Smith. As photography transformed the practice of astronomy, the ladies turned from computation to studying the stars captured nightly on glass photographic plates. The “glass universe” of half a million plates that Harvard amassed over the ensuing decades—through the generous support of Mrs. Anna Palmer Draper, the widow of a pioneer in stellar photography—enabled the women to make extraordinary discoveries that attracted worldwide acclaim. They helped discern what stars were made of, divided the stars into meaningful categories for further research, and found a way to measure distances across space by starlight. Their ranks included Williamina Fleming, a Scottish woman originally hired as a maid who went on to identify ten novae and more than three hundred variable stars; Annie Jump Cannon, who designed a stellar classification system that was adopted by astronomers the world over and is still in use; and Dr. Cecilia Helena Payne, who in 1956 became the first ever woman professor of astronomy at Harvard—and Harvard’s first female department chair. Elegantly written and enriched by excerpts from letters, diaries, and memoirs, *The Glass Universe* is the hidden history of the women whose contributions to the burgeoning field of astronomy forever changed our understanding of the stars and our place in the universe.

From #1 New York Times bestselling author Dava Sobel, the "inspiring" (People), little-known true story of women's landmark contributions to astronomy A New York Times Book Review Notable Book of 2017 Named one of the best books of the year by NPR, The Economist, Smithsonian, Nature, and NPR's Science Friday Nominated for the PEN/E.O. Wilson Literary Science Writing Award "A joy to read." —The Wall Street Journal In the mid-nineteenth century, the Harvard College Observatory began employing women as calculators, or “human computers,” to interpret the observations their male counterparts made via telescope each night. At the outset this group included the wives, sisters, and daughters of the resident astronomers, but soon the female corps included graduates of the new women's colleges—Vassar, Wellesley, and Smith. As photography transformed the practice of astronomy, the ladies turned from computation to studying the stars captured nightly on glass photographic plates. The “glass universe” of half a million plates that Harvard amassed over the ensuing decades—through the generous support of Mrs. Anna Palmer Draper, the widow of a pioneer in stellar photography—enabled the women to make extraordinary discoveries that attracted worldwide acclaim. They helped discern what stars were made of, divided the stars into meaningful categories for further research, and found a way to measure distances across space by starlight. Their ranks included Williamina Fleming, a Scottish woman originally hired as a maid who went on to identify ten novae and more than three hundred variable stars; Annie Jump Cannon, who designed a stellar classification system that was adopted by astronomers the world over and is still in use; and Dr. Cecilia Helena Payne, who in 1956 became the first ever woman professor of astronomy at Harvard—and Harvard’s first female department chair. Elegantly written and enriched by excerpts from letters, diaries, and memoirs, *The Glass Universe* is the hidden history of the women whose contributions to the burgeoning field of astronomy forever changed our understanding of the stars and our place in the universe. The leader of NASA's controversial multimillion-dollar transglobal search for signs of extraterrestrial life pulls fact from fiction in this accessible and entertaining book. Essential reading for anyone concerned with the stirring prospect that *We are not alone!* --Carl Sagan. Illustrations. 16-page photo insert.

The Quest for Longitude is a book for students and for teachers, for collectors and for scholars, and for the thousands of people who, having enjoyed Sobel's *Longitude*, desire a well-illustrated reference that describes in detail the many fascinating devices and the intriguing characters who, by solving the ancient problem of finding longitude at sea, changed the world forever. 250 illustrations, 120 in color. An exploration of mankind's fascination with worlds beyond our own-by the bestselling author of *The Physics of Star Trek* Lawrence Krauss -an international leader in physics and cosmology-examines our long and ardent romance with parallel universes, veiled dimensions, and

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regions of being that may extend tantalizingly beyond the limits of our perception. Krauss examines popular culture's current embrace (and frequent misunderstanding) of such topics as black holes, life in other dimensions, strings, and some of the more extraordinary new theories that propose the existence of vast extra dimensions alongside our own. BACKCOVER: "An astonishing and brilliantly written work of popular science." -Science a GoGo "A brilliant, thrilling book . . . You'll have so much fun reading that you'll hardly notice you're getting a primer on contemporary physics and cosmology." -Walter Isaacson, author of Benjamin Franklin: An American Life

New York Times bestselling author Edward Dolnick brings to light the true story of one of the most pivotal moments in modern intellectual history—when a group of strange, tormented geniuses invented science as we know it, and remade our understanding of the world. Dolnick's earth-changing story of Isaac Newton, the Royal Society, and the birth of modern science is at once an entertaining romp through the annals of academic history, in the vein of Bill Bryson's *A Short History of Nearly Everything*, and a captivating exploration of a defining time for scientific progress, in the tradition of Richard Holmes' *The Age of Wonder*.

The epic, behind-the-scenes story of an astounding gap in our scientific knowledge of the cosmos. In the past few years, a handful of scientists have been in a race to explain a disturbing aspect of our universe: only 4 percent of it consists of the matter that makes up you, me, our books, and every planet, star, and galaxy. The rest—96 percent of the universe—is completely unknown. Richard Panek tells the dramatic story of how scientists reached this conclusion, and what they're doing to find this "dark" matter and an even more bizarre substance called dark energy. Based on in-depth, on-site reporting and hundreds of interviews—with everyone from Berkeley's feisty Saul Perlmutter and Johns Hopkins's meticulous Adam Riess to the quietly revolutionary Vera Rubin—the book offers an intimate portrait of the bitter rivalries and fruitful collaborations, the eureka moments and blind alleys, that have fueled their search, redefined science, and reinvented the universe. Inspired by a long fascination with Galileo, and by the remarkable surviving letters of Galileo's daughter, a cloistered nun, Dava Sobel has written a biography unlike any other of the man Albert Einstein called "the father of modern physics- indeed of modern science altogether." Galileo's Daughter also presents a stunning portrait of a person hitherto lost to history, described by her father as "a woman of exquisite mind, singular goodness, and most tenderly attached to me." Galileo's Daughter dramatically recolors the personality and accomplishment of a mythic figure whose seventeenth-century clash with Catholic doctrine continues to define the schism between science and religion. Moving between Galileo's grand public life and Maria Celeste's sequestered world, Sobel illuminates the Florence of the Medicis and the papal court in Rome during the pivotal era when humanity's perception of its place in the cosmos was about to be overturned. In that same time, while the bubonic plague wreaked its terrible devastation and the Thirty Years' War tipped fortunes across Europe, one man sought to reconcile the Heaven he revered as a good Catholic with the heavens he revealed through his telescope. With all the human drama and scientific adventure that distinguished Dava Sobel's previous book *Longitude*, Galileo's Daughter is an unforgettable story

Between 1650 and 1750, four Catholic churches were the best solar observatories in the world. Built to fix an unquestionable date for Easter, they also housed instruments that threw light on the disputed geometry of the solar system, and so, within sight of the altar, subverted Church doctrine about the order of the universe. A tale of politically canny astronomers and cardinals with a taste for mathematics, "The Sun in the Church" tells how these observatories came to be, how they worked, and what they accomplished. It describes Galileo's political overreaching, his subsequent trial for heresy, and his slow and steady rehabilitation in the eyes of the Catholic Church. And it offers an enlightening perspective on astronomy, Church history, and religious architecture, as well as an analysis of measurements testing the limits of attainable accuracy, undertaken with rudimentary means and extraordinary zeal. Above all, the book illuminates the niches protected and

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financed by the Catholic Church in which science and mathematics thrived. Superbly written, "The Sun in the Church" provides a magnificent corrective to long-standing oversimplified accounts of the hostility between science and religion.

Presents a collection of essays exploring the human dimensions of science, furnishing portraits of seminal scientists Richard Feynman, Albert Einstein, Edward Teller, and Vera Rubin, as well as reflections on science and art, imagination and metaphor in science, and the social and spiritual implications of technology.

Within the last 40 years, the contents of our solar system have been slowly revealed by a fleet of satellites and interplanetary probes, from Cassini to the Hubble Space Telescope to the recent Mars Exploration Rovers. Moving out from the Sun, every planet and moon is visited in this comprehensive survey that follows the tracks of robotic rovers over Mars, plunges through Titan's atmosphere on the back of the Huygens probe, inspects a comet, and discovers the frozen planets that lurk beyond the orbit of Neptune, a full light year from Earth. The breathtaking images of dozens of celestial bodies are accompanied by fascinating captions and informative diagrams, completing this stunning compilation.

The bestselling author of Longitude and Galileo's Daughter tells the story of Nicolaus Copernicus and the revolution in astronomy that changed the world.

The dramatic human story of an epic scientific quest and of one man's forty-year obsession to find a solution to the thorniest scientific dilemma of the day--"the longitude problem." Anyone alive in the eighteenth century would have known that "the longitude problem" was the thorniest scientific dilemma of the day-and had been for centuries. Lacking the ability to measure their longitude, sailors throughout the great ages of exploration had been literally lost at sea as soon as they lost sight of land. Thousands of lives and the increasing fortunes of nations hung on a resolution. One man, John Harrison, in complete opposition to the scientific community, dared to imagine a mechanical solution-a clock that would keep precise time at sea, something no clock had ever been able to do on land. Longitude is the dramatic human story of an epic scientific quest and of Harrison's forty-year obsession with building his perfect timekeeper, known today as the chronometer. Full of heroism and chicanery, it is also a fascinating brief history of astronomy, navigation, and clockmaking, and opens a new window on our world. In his most powerful book to date, award-winning author Timothy Ferris makes a passionate case for science as the inspiration behind the rise of liberalism and democracy. Ferris shows how science was integral to the American Revolution but misinterpreted in the French Revolution; reflects on the history of liberalism, stressing its widely underestimated and mutually beneficial relationship with science; and surveys the forces that have opposed science and liberalism—from communism and fascism to postmodernism and Islamic fundamentalism. A sweeping intellectual history, The Science of Liberty is a stunningly original work that transcends the antiquated concepts of left and right.

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