

Five Billion Years Of Solitude The Search For Life Among Stars Lee Billings

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Five Billion Years of Solitude is a completely up to date (2013) study of the search for extraterrestrial life and all that this pertains, from mundane things like ...

Five Billion Years of Solitude: The Search for Life Among ...

This book ' s title, Five Billion Years of Solitude, refers to the longevity of life on Earth.

Five Billion Years of Solitude: The Search for Life Among ...

Five Billion Years of Solitude, written by Lee Billings, is an excellent primer on the issues of life, death and survival facing the human race.

Five Billion Years of Solitude: The Search for Life Among ...

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years our living planet has been alone in a vast and silent universe. But soon, Earth's isolation could come to an end. Over the past two decades, astronomers have discovered ...

Five Billion Years of Solitude — Lee Billings

Since its formation nearly five billion years ago, our planet has been the sole living world in a vast and silent universe.

Five Billion Years of Solitude on Apple Books

The text was initially published on October 3, 2013 by Current. The paperback version was published on October 28, 2014.

Five Billion Years of Solitude - Wikipedia

-CARL ZIMMER, author of A PLANET OF VIRUSES and EVOLUTION ' Five Billion Years of Solitude is 'awesome' in that term's strictest sense.

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In ' Five Billion Years of Solitude: A Search for Life Among the Stars ' (Current, 2014 Paperback), Billings takes a good long look at the current search for exoplanets and, ultimately, for other...

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Since its formation nearly five billion years ago, our planet has been the sole living world in a vast and silent universe. Now, Earth's isolation is coming to an end. Over the past two decades, astronomers have discovered thousands of "exoplanets" orbiting other stars, including some that could be similar to our own world.

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But the stakes in the planet-hunting game are more than just intellectual, as Lee Billings, a freelance journalist, points out in " Five Billion Years of Solitude, " his graceful new book on the...

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“ Highly readable and richly contextual, Five Billion Years of Solitude illuminates the personalities behind an adventure of astronomical exploration in which thousands of worlds are being discovered almost overnight. ” —TIMOTHY FERRIS, author of COMING OF AGE IN THE MILKY WAY and THE SCIENCE OF LIBERTY

Five Billion Years of Solitude: The Search for Life Among ...

About Five Billion Years of Solitude “ A definitive guide to astronomy ’ s hottest field. ” —The Economist Since its formation nearly five billion years ago, our planet has been the sole living world in a vast and silent universe.

Five Billion Years of Solitude by Lee Billings ...

A new book, “ Five Billion Years of Solitude, ” takes the reader from the earliest efforts of astrobiology, along with information on how life took hold on Earth, to how we can use that information...

Book Review: 'Five Billion Years of Solitude' by Lee ...

Five Billion Years of Solitude Book Description : An intimate history of Earth and the quest for life beyond the solar system traces the discoveries of thousands of "exoplanets" throughout the past 20 years, including some with Earth-like characteristics that top researchers are examining for evidence of life.

“ A definitive guide to astronomy ’ s hottest field. ” —The Economist Since its formation nearly five billion years ago, our planet has been the sole living world in a vast and silent universe. But over the past two decades, astronomers have discovered thousands of “ exoplanets, ” including some that could be similar to our own world, and the pace of discovery is accelerating. In a fascinating account of this unfolding revolution, Lee Billings draws on interviews with the world ’ s top experts in the search for life beyond earth. He reveals how the search for exoplanets is not only a scientific challenge, but also a reflection of our culture ’ s timeless hopes, dreams, and fears.

An intimate history of Earth and the quest for life beyond the solar system traces the discoveries of thousands of "exoplanets" throughout the past 20 years, including some with Earth-like characteristics that top researchers are examining for evidence of life.

In the mid-1990s, astronomers made history when they began to find planets orbiting stars in the Milky Way. More than eight hundred planets have been found since then, yet none of them is anything like Earth and none could support life. Now, armed with more powerful technology, planet hunters are racing to find a true twin of Earth. Science writer Michael Lemonick has unique access to these exoplaneteers, as they call themselves, and Mirror Earth unveils their passionate quest. Unlike competitors in other races, Geoff Marcy, Bill Borucki, David Charbonneau, Sara Seager, and others actually consult and cooperate with one another. But only one will be the first to find Earth's twin. Mirror Earth tells the story of their competition.

LOS ANGELES TIMES BOOK PRIZE WINNER • An MIT astrophysicist reinvents herself in the wake of tragedy and discovers the power of connection on this planet,

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even as she searches our galaxy for another Earth, in this “bewitching” (Anthony Doerr, *The New York Times Book Review*) memoir. “Sara Seager’s exploration of outer and inner space makes for a stunningly original memoir.” —Abraham Verghese, author of *Cutting for Stone* Sara Seager has always been in love with the stars: so many lights in the sky, so much possibility. Now a pioneering planetary scientist, she searches for exoplanets—especially that distant, elusive world that sustains life. But with the unexpected death of Seager’s husband, the purpose of her own life becomes hard for her to see. Suddenly, at forty, she is a widow and the single mother of two young boys. For the first time, she feels alone in the universe. As she struggles to navigate her life after loss, Seager takes solace in the alien beauty of exoplanets and the technical challenges of exploration. At the same time, she discovers earthbound connections that feel every bit as wondrous, when strangers and loved ones alike reach out to her across the space of her grief. Among them are the Widows of Concord, a group of women offering advice on everything from home maintenance to dating, and her beloved sons, Max and Alex. Most unexpected of all, there is another kind of one-in-a-billion match, not in the stars but here at home. Probing and invigoratingly honest, *The Smallest Lights in the Universe* is its own kind of light in the dark.

Why Earth’s life-friendly climate makes it exceptional—and what that means for the likelihood of finding intelligent extraterrestrial life We have long fantasized about finding life on planets other than our own. Yet even as we become aware of the vast expanses beyond our solar system, it remains clear that Earth is exceptional. The question is: why? In *Lucky Planet*, astrobiologist David Waltham argues that Earth’s climate stability is what makes it uniquely able to support life, and it is nothing short of luck that made such conditions possible. The four billion year-stretch of good weather that our planet has experienced is statistically so unlikely that chances are slim that we will ever encounter intelligent extraterrestrial others. Citing the factors that typically control a planet’s average temperature—including the size of its moon, as well as the rate of the Universe’s expansion—Waltham challenges the prevailing scientific consensus that Earth-like planets have natural stabilizing mechanisms that allow life to flourish. A lively exploration of the stars above and the ground beneath our feet, *Lucky Planet* seamlessly weaves the story of Earth and the worlds orbiting other stars to give us a new perspective of the surprising role chance plays in our place in the universe.

“Expansive and enlightening. . . . Impey packs his prose with wonderful anecdotes and weird factoids.” —*New York Times Book Review* Human exploration has been an unceasing engine of technological progress, from the first homo sapiens to leave our African cradle to a future in which mankind promises to settle another world. *Beyond* tells the epic story of humanity leaving home—and how humans will soon thrive in the vast universe beyond the earth. A dazzling and propulsive voyage through space and time, *Beyond* reveals how centuries of space explorers—from the earliest stargazers to today’s cutting-edge researchers—all draw inspiration from an innate human emotion: wanderlust. This urge to explore led us to multiply around the globe, and it can be traced in our DNA. Today, the urge to discover manifests itself in jaw-dropping ways: plans for space elevators poised to replace rockets at a fraction of the cost; experiments in suspending and reanimating life for ultra-long-distance travel; prototypes for solar sails that coast through space on the momentum of microwaves released from the Earth. With these ventures, private companies and

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entrepreneurs have the potential to outpace NASA as the leaders in a new space race. Combining expert knowledge of astronomy and avant-garde technology, Chris Impey guides us through the heady possibilities for the next century of exploration. In twenty years, a vibrant commercial space industry will be operating. In thirty years, there will be small but viable colonies on the Moon and Mars. In fifty years, mining technology will have advanced enough to harvest resources from asteroids. In a hundred years, a cohort of humans born off-Earth will come of age without ever visiting humanity's home planet. This is not the stuff of science fiction but rather the logical extension of already available technologies. Beyond shows that space exploration is not just the domain of technocrats, but the birthright of everyone and the destiny of generations to come. To continue exploration is to ensure our survival. Outer space, a limitless unknown, awaits us.

In 1543, Nicolaus Copernicus fomented a revolution when he debunked the geocentric view of the universe, proving instead that our planet wasn't central to the universe. Almost five hundred years later, the revolution he set in motion is nearly complete. Just as earth is not the center of things, the life on it, it appears, is not unique to the planet. Or is it? The Life of Super-Earths is a breathtaking tour of current efforts to answer the age-old question: Are we alone in the universe? Astronomer Dimitar Sasselov, the founding director of Harvard University's Origins of Life Initiative, takes us on a fast-paced hunt for habitable planets and alien life forms. He shows how the search for "super-Earths" -- rocky planets like our own that orbit other stars -- may provide the key to answering essential questions about the origins of life here and elsewhere. That is, if we don't find the answers to those questions here first. As Sasselov and other astronomers have uncovered planets with mixes of elements different from our own, chemists have begun working out the heretofore unseen biochemistries that those planets could support. That knowledge is feeding directly into synthetic biology -- the effort to build wholly novel forms of life -- making it likely that we will first discover truly "alien" life forms in an earthly lab, rather than on a remote planet thousands of light years away. Sasselov tells the gripping story of a moment of unprecedented potential -- a convergence of pioneering efforts in astronomy and biology to peer into the unknown. The Life of Super-Earths offers nothing short of a transformation in our understanding of life and its place in the cosmos.

Hailed by The New York Times for writing "with wonderful clarity about science . . . that effortlessly teaches as it zips along," nationally bestselling author Robert M. Hazen offers a radical new approach to Earth history in this intertwined tale of the planet's living and nonliving spheres. With an astrobiologist's imagination, a historian's perspective, and a naturalist's eye, Hazen calls upon twenty-first-century discoveries that have revolutionized geology and enabled scientists to envision Earth's many iterations in vivid detail—from the mile-high lava tides of its infancy to the early organisms responsible for more than two-thirds of the mineral varieties beneath our feet. Lucid, controversial, and on the cutting edge of its field, The Story of Earth is popular science of the highest order. "A sweeping rip-roaring yarn of immense scope, from the birth of the elements in the stars to meditations on the future habitability of our world." -Science "A fascinating story." -Bill McKibben

In its first-ever unexpurgated edition, a sci-fi landmark that's a comic and suspenseful tour-de-force, and puts distraction in a whole new light: It's not you, it's

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the universe! Boris and Arkady Strugatsky were the greatest science fiction writers of the Soviet era: their books were intellectually provocative and riotously funny, full of boldly imagined scenarios and veiled—but clear—social criticism. Which may be why *Definitely Maybe* has never before been available in an uncensored edition, let alone in English. It tells the story of astrophysicist Dmitri Malianov, who has sent his wife and son off to her mother's house in Odessa so that he can work, free from distractions, on the project he's sure will win him the Nobel Prize. But he'd have an easier time making progress if he wasn't being interrupted all the time: First, it's the unexpected delivery of a crate of vodka and caviar. Then a beautiful young woman in an unnervingly short skirt shows up at his door. Then several of his friends—also scientists—drop by, saying they all felt they were on the verge of a major discovery when they got . . . distracted . . . Is there an ominous force that doesn't want knowledge to progress? Or could it be something more . . . natural? In this nail-bitingly suspenseful book, the Strugatsky brothers bravely and brilliantly question authority: an authority that starts with crates of vodka, but has lightning bolts in store for humans who refuse to be cowed. From the Trade Paperback edition.

Humanity's ongoing quest to unlock the secrets of dark matter and dark energy *Heart of Darkness* describes the incredible saga of humankind's quest to unravel the deepest secrets of the universe. Over the past thirty years, scientists have learned that two little-understood components—dark matter and dark energy—comprise most of the known cosmos, explain the growth of all cosmic structure and hold the key to the universe's fate. The story of how evidence for the so-called "Lambda-Cold Dark Matter" model of cosmology has been gathered by generations of scientists throughout the world is told here by one of the pioneers of the field, Jeremiah Ostriker, and his coauthor Simon Mitton. From humankind's early attempts to comprehend Earth's place in the solar system, to astronomers' exploration of the Milky Way galaxy and the realm of the nebulae beyond, to the detection of the primordial fluctuations of energy from which all subsequent structure developed, this book explains the physics and the history of how the current model of our universe arose and has passed every test hurled at it by the skeptics. Throughout this rich story, an essential theme is emphasized: how three aspects of rational inquiry—the application of direct measurement and observation, the introduction of mathematical modeling, and the requirement that hypotheses should be testable and verifiable—guide scientific progress and underpin our modern cosmological paradigm. This monumental puzzle is far from complete, however, as scientists confront the mysteries of the ultimate causes of cosmic structure formation and the real nature and origin of dark matter and dark energy.

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