

Lovelock And Gaia

Gaia by James Lovelock

Gaia-James Lovelock 2016 First published 1979, first issued as an Oxford University paperback 1982.

Gaia by James Lovelock

The Revenge of Gaia-James Lovelock 2007-08-02 The key insight of Gaia Theory is that the entire Earth functions as a single living super-organism. But according to James Lovelock, the theory's originator, that organism is now sick. It is running a fever born of increased atmospheric greenhouse gases. Earth will adjust to these stresses, but the human race faces a severe test. It is already too late, Lovelock says, to prevent the global climate from “flipping” into an entirely new equilibrium that will threaten civilization as we know it. But we can do much to save humanity. In the tradition of Silent Spring, this is a call to address a major threat to our collective future.

Gaia by James Lovelock

The Ages of Gaia-James Lovelock 1995 In his first book, Gaia: A New Look at Life on Earth, Jim Lovelock proposed a startling new theory of life: the Earth, its rocks, oceans, atmosphere and all living things, are part of one great organism, evolving over the vast span of geological time. In this sequel, he examines environmental and scientific issues in detail, including the greenhouse effect, acid rain, the depletion of the ozone layer, and the destruction of tropical forests.

Gaia by James Lovelock

The Vanishing Face of Gaia-James Lovelock 2009-02-26 James Lovelock described his previous book, The Revenge of Gaia, as 'a wake-up call for humanity'. Stark though it was in many respects, in The Vanishing Face of Gaia Lovelock says that even though the weather seems cooler and pollution lessens as the recession bites, the environmental problems we will face in the twenty-first century are even more terrifying than he previously realised. The Arctic and Antarctic ice-caps are melting very quickly, and water shortages and natural disasters are more common occurrences than at any time in recent history. The civilisations of many countries will be jeopardised and life as we know it severely disrupted. Almost all predictions of the likely rate of climate change have been based on estimates which professional observers in the real worldnow show are consistently underestimating the true rate of change. As a global community we continue to be fixated by conventional 'green' ideas which we believe will help save our world. Lovelock argues that only Gaia theory, which he originated over forty years ago, can really help us understand the crisis fully. The root problem is that there are too many people and animals for the Earth to carry. And there is in fact only one possible procedure which might bring a permanent cure for climate change, but we are unlikely to adopt it. 'Our wish to continue business as usual will probably prevent us from saving ourselves' says Lovelock, so we must adapt as best we can and try to ensure that enough of us survive to allow a more capable species to evolve from us. There could hardly be a more important message for humankind. James Lovelock has been an active and accurate observer of the Earth environment since the 1960s and was the first to find CFCs and other gases accumulating in the air. His Gaia theory provides insight into climate change in the coming century.This is his final warning.

Gaia by James Lovelock

Novacene-James Lovelock 2020-11-10 The originator of the Gaia theory offers the vision of a future epoch in which humans and artificial intelligence together will help the Earth survive. James Lovelock, creator of the Gaia hypothesis and the greatest environmental thinker of our time, has produced an astounding new theory about future of life on Earth. He argues that the Anthropocene—the age in which humans acquired planetary-scale technologies—is, after 300 years, coming to an end. A new age—the Novacene—has already begun. In the Novacene, new beings will emerge from existing artificial intelligence systems. They will think 10,000 times faster than we do and they will regard us as we now regard plants. But this will not be the cruel, violent machine takeover of the planet imagined by science fiction. These hyperintelligent beings will be as dependent on the health of the planet as we are. They will need the planetary cooling system of Gaia to defend them from the increasing heat of the sun as much as we do. And Gaia depends on organic life. We will be partners in this project. It is crucial, Lovelock argues, that the intelligence of Earth survives and prospers. He does not think there are intelligent aliens, so we are the only beings capable of understanding the cosmos. Perhaps, he speculates, the Novacene could even be the beginning of a process that will finally lead to intelligence suffusing the entire cosmos. At the age of 100, James Lovelock has produced the most important and compelling work of his life.

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Gaia-Mohammad Shamsudduha 2017-07-05 Gaia: A New Look At Life on Earth may continue to divide opinion, but nobody can deny that the book offers a powerful insight into the creative thinking of its author, James E. Lovelock. Published in 1979, Gaia offered a radically new hypothesis: the Earth, Lovelock argued, is a living entity. Together, the planet and all its separate living organisms form a single self-regulating body, sustaining life and helping it evolve through time. Lovelock sees humans as no more special than other elements of the planet, railing against the once widely-held belief that the good of mankind is the only thing that matters. Despite being seen as radical, and even idiotic on its publication, a version of Lovelock’s viewpoint has found resonance in contemporary debates about the environment and climate, and has now broadly come to be accepted by modern thinkers. As man’s effects on the climate become increasingly extreme, more and more elements of the Earth’s self-regulation seem to be unveiled - forcing scientists to ask how far the planet might be able to go in order self-regulate effectively. Indeed, despite its far-fetched elements, Lovelock’s Gaia thesis seems to ring more convincingly today than ever before; that it does is largely a result of the critical thinking skills that allowed Lovelock to produce novel explanations for existing evidence and, above all, to connect existing fragments of evidence together in new ways.

Gaia by James Lovelock

Lovelock and Gaia-Jon Turney 2003 Naming his theory after the ancient Greek earth goddess, Lovelock's "Gaia hypothesis" argued that everything on the planet--air, water, soil, and organisms--somehow act together in a global, self-organizing system to maintain conditions suitable to sustaining and perpetuating life. Telling the story of this maverick pioneer, Lovelock and Gaia explains how Lovelock's remarkable hypothesis is gradually ushering in a scientific revolution.

Gaia by James Lovelock

We Belong to Gaia-James Lovelock 2021-08-26 In twenty short books, Penguin brings you the classics of the environmental movement. James Lovelock's We Belong to Gaia draws on decades of wisdom to lay out the history of our remarkable planet, to show that it is not ours to be exploited - and warns us that it is fighting back. Over the past 75 years, a new canon has emerged. As life on Earth has become irrevocably altered by humans, visionary thinkers around the world have raised their voices to defend the planet, and affirm our place at the heart of its restoration. Their words have endured through the decades, becoming the classics of a movement. Together, these books show the richness of environmental thought, and point the way to a fairer, saner, greener world.

Gaia by James Lovelock

Homage to Gaia-James Lovelock 2014-01-02 A new edition in the year of James Lovelock's 100th birthday With over fifty patents to his name and innumerable awards and accolades, James Lovelock is a distinguished and original thinker who has been widely recognized by the international scientific community. In this inspiring book, republished in the year of his 100th birthday, Lovelock tells his life story, from his first steps as a scientist to his work with organisations as diverse as NASA, Shell and the Marine Biological Association. Homage to Gaia describes the years of travel and work that led to his crucial scientific breakthroughs in environmental awareness, uncovering how CFCs impact on the ozone layer and creating the concept of Gaia, the theory that the Earth is a self-regulating system. Written in a sharp and energetic style, James Lovelock’s book will entertain and inspire anyone interested in science or the creative spirit.

Gaia by James Lovelock

On Gaia-Toby Tyrrell 2013-07-21 A critical examination of James Lovelock’s controversial Gaia hypothesis One of the enduring questions about our planet is how it has remained continuously habitable over vast stretches of geological time despite the fact that its atmosphere and climate are potentially unstable. James Lovelock’s Gaia hypothesis posits that life itself has intervened in the regulation of the planetary environment in order to keep it stable and favorable for life. First proposed in the 1970s, Lovelock’s hypothesis remains highly controversial and continues to provoke fierce debate. On Gaia undertakes the first in-depth investigation of the arguments put forward by Lovelock and others—and concludes that the evidence doesn't stack up in support of Gaia. Toby Tyrrell draws on the latest findings in fields as diverse as climate science, oceanography, atmospheric science, geology, ecology, and evolutionary biology. He takes readers to obscure corners of the natural world, from southern Africa where ancient rocks reveal that icebergs were once present near the equator, to mimics of cleaner fish on Indonesian reefs, to blind fish deep in Mexican caves. Tyrrell weaves these and many other intriguing observations into a comprehensive analysis of the major assertions and lines of argument underpinning Gaia, and finds that it is not a credible picture of how life and Earth interact. On Gaia reflects on the scientific evidence indicating that life and environment mutually affect each other, and proposes that feedbacks on Earth do not provide robust protection against the environment becoming uninhabitable—or against poor stewardship by us.

Gaia by James Lovelock

Scientists Debate Gaia-Stephen Henry Schneider 2004 Leading scientists bring the controversy over Gaia up to date by exploring a broad range of recent thinking on Gaia theory.

Gaia by James Lovelock

He Knew He Was Right-John Gribbin 2009-10-01 Jim Lovelock is an iconic figure in British science, a prophet whose prophecies are coming true. This is his definitive authorised biography. Lovelock is best known as the ‘father’ of Gaia theory, which isnow established as the most useful way of understanding the dramatic changes happening to the environment of the Earth. But few people know about his early work as a chemist and inventor - work which included inventing the detectors used to search for life on Mars, and blowing the whistle on the depletion of ozone layer. In his personal life, he was a Quaker and conscientious objector in World War Two (later changing his mind in view of the evils of Nazism), supported his family for a time by selling his own blood, and gave up a salary and security to become an independent scientist based in an English village - from which all his best known work emerged. As he approaches his 90th birthday, looking forward to going into space, this book truly reveals an independent, original and inspiring life.

Gaia by James Lovelock

James Lovelock-John Gribbin 2021-07-13 In 1972, when James Lovelock first proposed the Gaia hypothesis--the idea that the Earth is a living organism that maintains conditions suitable for life--he was ridiculed by the scientific establishment. Today Lovelock's revolutionary insight, though still extremely controversial, is recognized as one of the most creative, provocative, and captivating scientific ideas of our time. James Lovelock tells for the first time the whole story of this maverick scientist's life and how it served as a unique preparation for the idea of Gaia. Drawing on in-depth interviews with Lovelock himself and unprecedented access to his private papers, John and Mary Gribbin paint an intimate and fascinating portrait of a restless, uniquely gifted freethinker. In a lifetime spanning almost a century, Lovelock has followed a career path that led him from chemistry, to medicine, to engineering, to space science. He worked for the British secret service and contributed to the success of the D-Day landings in World War II. He was a medical experimenter and an accomplished inventor. And he was working with NASA on methods for finding possible life on Mars when he struck upon the idea of Gaia, conceiving of the Earth as a vast, living, self-regulating system. Deftly framed within the context of today's mounting global-warming crisis, James Lovelock traces the intertwining trajectories of Lovelock's life and the famous idea it brought forth, which continues to provoke passionate debate about the nature and future of life on our planet.

Gaia by James Lovelock

The Gaia Hypothesis-Michael Ruse 2013-09-25 In 1965 English scientist James Lovelock had a flash of insight: the Earth is not just teeming with life; the Earth, in some sense, is life. He mulled this revolutionary idea over for several years, first with his close friend the novelist William Golding, and then in an extensive collaboration with the American scientist Lynn Margulis. In the early 1970s, he finally went public with the Gaia hypothesis, the idea that everything happens for an end: the good of planet Earth. Lovelock and Margulis were scorned by professional scientists, but the general public enthusiastically embraced Lovelock and his hypothesis. People joined Gaia groups; churches had Gaia services, sometimes with new music written especially for the occasion. There was a Gaia atlas, Gaia gardening, Gaia herbs, Gaia retreats, Gaia networking, and much more. And the range of enthusiasts was—and still is—broad. In The Gaia Hypothesis, philosopher Michael Ruse, with his characteristic clarity and wit, uses Gaia and its history, its supporters and detractors, to illuminate the nature of science itself. Gaia emerged in the 1960s, a decade when authority was questioned and status and dignity stood for nothing, but its story is much older. Ruse traces Gaia’s connection to Plato and a long history of goal-directed and holistic—or organicist—thinking and explains why Lovelock and Margulis’s peers rejected it as pseudoscience. But Ruse also shows why the project was a success. He argues that Lovelock and Margulis should be commended for giving philosophy firm scientific basis and for provoking important scientific discussion about the world as a whole, its homeostasis or—in this age of global environmental uncertainty—its lack thereof. Melding the world of science and technology with the world of feeling, mysticism, and religion, The Gaia Hypothesis will appeal to a broad range of readers, from students and scholars of the history and philosophy of science to anyone interested in New Age culture.

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Gaia-Mohammad Shamsudduha 2017-07-05 Gaia: A New Look At Life on Earth may continue to divide opinion, but nobody can deny that the book offers a powerful insight into the creative thinking of its author, James E. Lovelock. Published in 1979, Gaia offered a radically new hypothesis: the Earth, Lovelock argued, is a living entity. Together, the planet and all its separate living organisms form a single self-regulating body, sustaining life and helping it evolve through time. Lovelock sees humans as no more special than other elements of the planet, railing against the once widely-held belief that the good of mankind is the only thing that matters. Despite being seen as radical, and even idiotic on its publication, a version of Lovelock’s viewpoint has found resonance in contemporary debates about the environment and climate, and has now broadly come to be accepted by modern thinkers. As man’s effects on the climate become increasingly extreme, more and more elements of the Earth’s self-regulation seem to be unveiled - forcing scientists to ask how far the planet might be able to go in order self-regulate effectively. Indeed, despite its far-fetched elements, Lovelock’s Gaia thesis seems to ring more convincingly today than ever before; that it does is largely a result of the critical thinking skills that allowed Lovelock to produce novel explanations for existing evidence and, above all, to connect existing fragments of evidence together in new ways.

Gaia by James Lovelock

A Rough Ride to the Future-James Lovelock 2014-04-03 In A Rough Ride to the Future, James Lovelock - the great scientific visionary of our age - presents a radical vision of humanity's future as the thinking brain of our Earth-system James Lovelock, who has been hailed as 'the man who conceived the first wholly new way of looking at life on earth since Charles Darwin' (Independent) and 'the most profound scientific thinker of our time' (Literary Review) continues, in his 95th year, to be the great scientific visionary of our age. This book introduces two new Lovelockian ideas. The first is that three hundred years ago, when Thomas Newcomen invented the steam engine, he was unknowingly beginning what Lovelock calls 'accelerated evolution', a process which is bringing about change on our planet roughly a million times faster than Darwinian evolution. The second is that as part of this process, humanity has the capacity to become the intelligent part of Gaia, the self-regulating Earth system whose discovery Lovelock first announced nearly 50 years ago. In addition, Lovelock gives his reflections on how scientific advances are made, and his own remarkable life as a lone scientist. The contribution of human beings to our planet is, Lovelock contends, similar to that of the early photosynthesisers around 3.4 billion years ago, which made the Earth's atmosphere what it was until very recently. By our domination and our invention, we are now changing the atmosphere again. There is little that can be done about this, but instead of feeling guilty about it we should recognise what is happening, prepare for change, and ensure that we survive as a species so we can contribute to - perhaps even guide - the next evolution of Gaia. The road will be rough, but if we are smart enough life will continue on Earth in some form far into the future. Elected a Fellow of the Royal Society in 1974, JAMES LOVELOCK is the author of more than 200 scientific papers and the originator of the Gaia Hypothesis (now Gaia Theory). His many books on the subject include Gaia: A New Look at Life on Earth (1979), The Revenge of Gaia (2006), and The Vanishing Face of Gaia (2009). In 2003 he was made a Companion of Honour by Her Majesty the Queen, in 2005 Prospect magazine named him one of the world's top 100 public intellectuals, and in 2006 he received the Wollaston Medal, the highest Award of the UK Geological Society.

Gaia by James Lovelock

The Sacred Balance-David Suzuki 2009-05-01 In this extensively revised and enlarged edition of his best-selling book, David Suzuki reflects on the increasingly radical changes in nature and science — from global warming to the science behind mother/baby interactions — and examines what they mean for humankind’s place in the world. The book begins by presenting the concept of people as creatures of the Earth who depend on its gifts of air, water, soil, and sun energy. The author explains how people are genetically programmed to crave the company of other species, and how people suffer enormously when they fail to live in harmony with them. Suzuki analyzes those deep spiritual needs, rooted in nature, that are a crucial component of a loving world. Drawing on his own experiences and those of others who have put their beliefs into action, The Sacred Balance is a powerful, passionate book with concrete suggestions for creating an ecologically sustainable, satisfying, and fair future by rediscovering and addressing humanity’s basic needs.

Gaia by James Lovelock

Gaia-James Lovelock 2000-09-28 This classic work is now reissued in new covers with a new Preface by the author. Written for non-scientists, this is an original work in which James Lovelock puts forward his inspirational idea that life on earth functions as a single organism.

Gaia by James Lovelock

Facing Gaia-Bruno Latour 2017-09-05 The emergence of modern sciences in the seventeenth century profoundly renewed our understanding of nature. For the last three centuries new ideas of nature have been continually developed by theology, politics, economics, and science, especially the sciences of the material world. The situation is even more unstable today, now that we have entered an ecological mutation of unprecedented scale. Some call it the Anthropocene, but it is best described as a new climatic regime. And a new regime it certainly is, since the many unexpected connections between human activity and the natural world oblige every one of us to reopen the earlier notions of nature and redistribute what had been packed inside. So the question now arises: what will replace the old ways of looking at nature? This book explores a potential candidate proposed by James Lovelock when he chose the name 'Gaia' for the fragile, complex system through which living phenomena modify the Earth. The fact that he was immediately misunderstood proves simply that his readers have tried to fit this new notion into an older frame, transforming Gaia into a single organism, a kind of giant thermostat, some sort of New Age goddess, or even divine Providence. In this series of lectures on 'natural religion,' Bruno Latour argues that the complex and ambiguous figure of Gaia offers, on the contrary, an ideal way to disentangle the ethical, political, theological, and scientific aspects of the now obsolete notion of nature. He lays the groundwork for a future collaboration among scientists, theologians, activists, and artists as they, and we, begin to adjust to the new climatic regime.

Gaia by James Lovelock

Gaia and Climate Change-Anne Primavesi 2008-08-18 James Lovelock’s Gaia theory revolutionized the understanding of our place and role in the global environment. It is now accepted that our activities over the past two hundred years have contributed to and accelerated the extreme weather events associated with climate change. The fact that those activities materialized, for the most part, from within Western Christian communities makes it imperative to assess and to change their theological climate: one characterized by routine use of violent, imperialist images of God. The basis for change explored here is that of gift events, particularly as evidenced in Jesus’s life and sayings. Its legacy of love of enemies and forgiveness offers a basis for nonviolent theological and practical approaches to our situatedness within the community of life. These are also Gaian responses, as they include foregoing a perception of ourselves as belonging to an elect group given power by God over earth’s life-support systems and over all those dependent on them, whether human or more-than-human. The degree to which we change this self-perception will determine how we affect, for good or ill, not only the givenness of the climate in future but the givenness of all future life on earth.

Gaia by James Lovelock

The Earth and I-Lee R. Kump 2016 Scientist, inventor, and pioneering environmentalist James Lovelock brings together a richly illustrated collection of essays on earth and human science from 12 of today's leading thinkers. From stars to cells, quantum theory to capitalism, ancient fossils to Artificial Intelligence, this book delivers a holistic understanding of our planet and...

Gaia by James Lovelock

Gaia-James Lovelock 2000-10-01 James Lovelock is a world-renowned scientist whose research on chlorofluorocarbons (CFCs) in the environment has generated a controversial theory about the Earth as a live, self-regulating organism. In his latest volume on the subject, Lovelock examines the health and future prospects of our ailing planet. 125 illustrations.

Gaia by James Lovelock

Sacred Gaia-Anne Primavesi 2002-09-11 Gaia, the scientific theory founded by James Lovelock in 1979, embraces the earth as a whole, dynamic entity whose sum is always larger than its parts. While science and theology are often seen as contraries, which negate or dilute one another, Gaia theory harmonizes both systems of thought. Sacred Gaia cogently describes Gaia theory's analysis of human and earthly evolution. Anne Primavesi's remarkable, effortlessly coherent book helps us to recognize the sacredness of our origins and our responsibility for the future.

Gaia-James Lovelock 2005 Author's preface; Introduction; Chapter 1 Recognising Gaia; Chapter 2 Anatomy; Chapter 3 Physiology; Chapter 4 Epigenesis; Chapter 5 Biochemistry and the cell; Chapter 6 Metabolism and planetary biochemistry; Chapter 7 Physiology and climate regulation; Chapter 8 The people plague; Conclusion; Glossary; Index

Biominaleralization and Biological Metal Accumulation-P. Westbroek 2012-12-06 Biominerals are generated by the subtle interaction of biological organization and mineral growth. They belong both to the living and the inanimate world and as such their genesis is among the most intriguing and fundamental subjects in science. However, the conceptual and technical resources that are available in physical chemistry and in the biological sciences is often inadequate for the elucidation of the problems involved, and hence this field is particularly difficult to explore. This may be an important reason why fundamental research on bio mineralization mechanisms has traditionally been carried out by a comparatively small group of scientists. There are signs, however, that the situation is ripe for a change. Various meetings on biominaleralization have been organized in the last few years, particularly in the medical sector. It is generally felt that further developments in the therapy of bone and tooth diseases will be largely dependent on an improved understanding of the fundamental underlying mechanisms of biominaleralization.

Dreamers, Visionaries, and Revolutionaries in the Life Sciences-Oren Harman 2018-07-20 What are the conditions that foster true novelty and allow visionaries to set their eyes on unknown horizons? What have been the challenges that have spawned new innovations, and how have they shaped modern biology? In Dreamers, Visionaries, and Revolutionaries in the Life Sciences, editors Oren Harman and Michael R. Dietrich explore these questions through the lives of eighteen exemplary biologists who had grand and often radical ideas that went far beyond the run-of-the-mill science of their peers. From the Frenchman Jean-Baptiste Lamarck, who coined the word “biology” in the early nineteenth century, to the American James Lovelock, for whom the Earth is a living, breathing organism, these dreamers innovated in ways that forced their contemporaries to reexamine comfortable truths. With this collection readers will follow Jane Goodall into the hidden world of apes in African jungles and Francis Crick as he attacks the problem of consciousness. Join Mary Lasker on her campaign to conquer cancer and follow geneticist George Church as he dreams of bringing back woolly mammoths and Neanderthals. In these lives and the many others featured in these pages, we discover visions that were sometimes fantastical, quixotic, and even threatening and destabilizing, but always a challenge to the status quo.

Gaia-Mohammad Shamsudduha 2017-07-04 Gaia: A New Look At Life on Earth may continue to divide opinion, but nobody can deny that the book offers a powerful insight into the creative thinking of its author, James E. Lovelock. Published in 1979, Gaia offered a radically new hypothesis: the Earth, Lovelock argued, is a living entity. Together, the planet and all its separate living organisms form a single self-regulating body, sustaining life and helping it evolve through time. Lovelock sees humans as no more special than other elements of the planet, railing against the once widely-held belief that the good of mankind is the only thing that matters. Despite being seen as radical, and even idiotic on its publication, a version of Lovelock’s viewpoint has found resonance in contemporary debates about the environment and climate, and has now broadly come to be accepted by modern thinkers. As man’s effects on the climate become increasingly extreme, more and more elements of the Earth’s self-regulation seem to be unveiled - forcing scientists to ask how far the planet might be able to go in order self-regulate effectively. Indeed, despite its far-fetched elements, Lovelock’s Gaia thesis seems to ring more convincingly today than ever before; that it does is largely a result of the critical thinking skills that allowed Lovelock to produce novel explanations for existing evidence and, above all, to connect existing fragments of evidence together in new ways.

Gaian Systems-Bruce Clarke 2020-09-29 A groundbreaking look at Gaia theory’s intersections with neocybernetic systems theory Often seen as an outlier in science, Gaia has run a long and varied course since its formulation in the 1970s by atmospheric chemist James Lovelock and microbiologist Lynn Margulis. Gaian Systems is a pioneering exploration of the dynamic and complex evolution of Gaia’s many variants, with special attention to Margulis’s foundational role in these developments. Bruce Clarke assesses the different dialects of systems theory brought to bear on Gaia discourse. Focusing in particular on Margulis’s work—including multiple pieces of her unpublished Gaia correspondence—he shows how her research and that of Lovelock was concurrent and conceptually parallel with the new discourse of self-referential systems that emerged within neocybernetic systems theory. The recent Gaia writings of Donna Haraway, Isabelle Stengers, and Bruno Latour contest its cybernetic status. Clarke engages Latour on the issue of Gaia’s systems description and extends his own systems-theoretical synthesis under what he terms “metabiotic Gaia.” This study illuminates current issues in neighboring theoretical conversations—from biopolitics and the immunitary paradigm to NASA astrobiology and the Anthropocene. Along the way, he points to science fiction as a vehicle of Gaian thought. Delving into many issues not previously treated in accounts of Gaia, Gaian Systems describes the history of a theory that has the potential to help us survive an environmental crisis of our own making.

From Gaia to Selfish Genes-Connie Barlow 1992-07-08 From Gaia to Selfish Genes is a different kind of anthology. Lively excerpts from the popular writings of leading theorists in the life sciences blend in a seamless presentation of the controversies and bold ideas driving contemporary biological research. Selections span scales from the biosphere to the cell and DNA, and disciplines from global ecology to behavior and genetics, and also reveals the links between biology and philosophy. They plunge the reader into debates about heredity and environment, competition and cooperation, randomness and determinism, and the meaning of individuality. From Gaia to Selfish Genes conveys the technical and conceptual roots of current scientific theories beginning with the planetary perspective of James Lovelock and Lynn Margulis and concluding with the reductionist views of Richard Dawkins and E. O. Wilson. The contrasting worldviews, coupled with excerpts drawn from critics of each theory, encourage readers to examine their own presuppositions. In addition to the scientists' portrayal of the Gaia hypothesis, symbiosis in cell evolution, hierarchy theory, systems theory, game theory, sociobiology, and the selfish gene, the text is rich in autobiographical passages and biographies. By presenting the human side of research, From Gaia to Selfish Genes reveals the social context and interactions, the motivations and range of cognitive styles that comprise the scientific endeavor. Concluding essays written expressly for this book by Lynn Margulis, John Maynard Smith, W. Ford Doolittle, and others underscore the importance of such diversity. Connie Barlow is a science writer currently living in New York City. The scientists include: Robert Axelrod. Richard D. Alexander. Ludwig von Bertalanffy. Leo W. Buss. Francis Crick. Richard Dawkins. W. Ford Doolittle. Douglas Hofstadter. Julian Huxley. Leon J. Kamin. Philip Kitcher. Richard C. Lewontin. James Lovelock. Lynn Margulis. Ashley Montagu. Leslie Orgel. Steven Rose. Carmen Sapienza. John Maynard Smith. Lewis Thomas. Gerald Weinberg. E. O. Wilson. Robert Wright. The science writers include: Lawrence Joseph. Arthur Koestler. Francesca Lyman. Jeanne McDermott. Richard Monastersky. Dorion Sagan.

The Global Carbon Cycle and Climate Change-David E. Reichle 2019-11-12 The Global Carbon Cycle and Climate Change examines the global carbon cycle and the energy balance of the biosphere, following carbon and energy through increasingly complex levels of metabolism from cells to ecosystems. Utilizing scientific explanations, analyses of ecosystem functions, extensive references, and cutting-edge examples of energy flow in ecosystems, it is an essential resource to aid in understanding the scientific basis of the role played by ecological systems in climate change. This book addresses the need to understand the global carbon cycle and the interrelationships among the disciplines of biology, chemistry, and physics in a holistic perspective. The Global Carbon Cycle and Climate Change is a compendium of easily accessible, technical information that provides a clear understanding of energy flow, ecosystem dynamics, the biosphere, and climate change. "Dr. Reichle brings over four decades of research on the structure and function of forest ecosystems to bear on the existential issue of our time, climate change. Using a comprehensive review of carbon biogeochemistry as scaled from the physiology of organisms to landscape processes, his analysis provides an integrated discussion of how diverse processes at varying time and spatial scales function. The work speaks to several audiences. Too often students study their courses in a vacuum without necessarily understanding the relationships that transcend from the cellular process, to organism, to biosphere levels and exist in a dynamic atmosphere with its own processes, and spatial dimensions. This book provides the template whereupon students can be guided to see how the pieces fit together. The book is self-contained but lends itself to be amplified upon by a student or professor. The same intellectual quest would also apply for the lay reader who seeks a broad understanding." --W.F. Harris| Deputy Assistant Director, Biological Sciences, National Science Foundation (Retired); Associate Vice Chancellor for Research, University of Tennessee, Knoxville (Retired) Provides clear explanations, examples, and data for understanding fossil fuel emissions affecting atmospheric CO2 levels and climate change, and the role played by ecosystems in the global cycle of energy and carbon Presents a comprehensive, factually based synthesis of the global cycle of carbon in the biosphere and the underlying scientific bases Includes clear illustrations of environmental processes

Gaia Alchemy-Stephan Harding 2021-12-21 • Examines how integrating important alchemical images with Gaian science can offer insights into our interconnectedness with Gaia • Looks at how the four components of the living earth--biosphere, atmosphere, hydrosphere, and lithosphere--mesh with the four elements of alchemical theory and the four functions of consciousness as understood by depth psychology • Offers guided meditations and contemplative exercises to open your receptivity to messages from the biosphere and help you connect more deeply with Gaia During the scientific revolution, science and soul were drastically separated, propelling humanity into four centuries of scientific exploration based solely on empiricism and rationality. But, as scientist and ecologist Stephan Harding, Ph.D., demonstrates in detail, by reintegrating science with profound personal experiences of psyche and soul, we can reclaim our lost sacred wholeness and help heal ourselves and our planet. Harding begins with compelling introductions to depth psychology, alchemy, and Gaia theory--the science of seeing the Earth as an intelligent, self-regulating system, a theory pioneered by his mentor James Lovelock. He then explores how alchemy, as understood through the depth psychology of C. G. Jung, offers us powerful methods of reuniting rationality and intuition, science and soul. He examines the integration of important alchemical engravings, including L’Azoth des Philosophes and the Rosarium Philosophorum, with Gaian science. He shows how the seven key alchemical operations in the Azoth image can help us develop deeply transformative experiences and insights into our interconnectedness with Gaia. He then looks at how the four components of the living Earth--biosphere, atmosphere, hydrosphere, and lithosphere--mesh not only with the four elements of alchemical theory but also with the four functions of consciousness from depth psychology. Woven throughout with the author’s own experiences of Gaia alchemy, the book also offers guided meditations, shamanic practices, and contemplative exercises to open your receptivity to messages from the biosphere and help you develop your own Gaia alchemical way of life, full of wonder and healing.

Gaia-James Lovelock 2000

Healing Gaia-James Lovelock 1991 The author takes his theory of looking at the earth as a living organism one step further, showing readers how to apply medical science to the healing of the planet and discussing ozone depletion, acid rain, and more

Encyclopedia of Ecology- 2014-11-03 The groundbreaking Encyclopedia of Ecology provides an authoritative and comprehensive coverage of the complete field of ecology, from general to applied. It includes over 500 detailed entries, structured to provide the user with complete coverage of the core knowledge, accessed as intuitively as possible, and heavily cross-referenced. Written by an international team of leading experts, this revolutionary encyclopedia will serve as a one-stop-shop to concise, stand-alone articles to be used as a point of entry for undergraduate students, or as a tool for active researchers looking for the latest information in the field. Entries cover a range of topics, including: Behavioral Ecology Ecological Processes Ecological Modeling Ecological Engineering Ecological Indicators Ecological Informatics Ecosystems Ecotoxicology Evolutionary Ecology General Ecology Global Ecology Human Ecology System Ecology The first reference work to cover all aspects of ecology, from basic to applied Over 500 concise, stand-alone articles are written by prominent leaders in the field Article text is supported by full-color photos, drawings, tables, and other visual material Fully indexed and cross referenced with detailed references for further study Writing level is suited to both the expert and non-expert Available electronically on ScienceDirect shortly upon publication

Environmental Microbiology-Ian L. Pepper 2011-10-13 For microbiology and environmental microbiology courses, this leading textbook builds on the academic success of the previous edition by including a comprehensive and up-to-date discussion of environmental microbiology as a discipline that has grown in scope and interest in recent years. From environmental science and microbial ecology to topics in molecular genetics, this edition relates environmental microbiology to the work of a variety of life science, ecology, and environmental science investigators. The authors and editors have taken the care to highlight links between environmental microbiology and topics important to our changing world such as bioterrorism and national security with sections on practical issues such as bioremediation, waterborne pathogens, microbial risk assessment, and environmental biotechnology. WHY ADOPT THIS EDITION? New chapters on: Urban Environmental Microbiology Bacterial Communities in Natural Ecosystems Global Change and Microbial Infectious Disease Microorganisms and Bioterrorism Extreme Environments (emphasizing the ecology of these environments) Aquatic Environments (now devoted to its own chapter- was combined with Extreme Environments) Updates to Methodologies: Nucleic Acid -Based Methods: microarrays, phyloarrays, real-time PCR, metagenomics, and comparative genomics Physiological Methods: stable isotope fingerprinting and functional genomics and proteomics-based approaches Microscopic Techniques: FISH (fluorescent in situ hybridization) and atomic force microscopy Cultural Methods: new approaches to enhanced cultivation of environmental bacteria Environmental Sample Collection and Processing: added section on air sampling

The Vertical Farm-Dr. Dickson Despommier 2010-10-12 "The vertical farm is a world-changing innovation whose time has come. Dickson Despommier's visionary book provides a blueprint for securing the world's food supply and at the same time solving one of the gravest environmental crises facing us today."--Sting Imagine a world where every town has their own local food source, grown in the safest way possible, where no drop of water or particle of light is wasted, and where a simple elevator ride can transport you to nature's grocery store - imagine the world of the vertical farm. When Columbia professor Dickson Despommier set out to solve America's food, water, and energy crises, he didn't just think big - he thought up. Despommier's stroke of genius, the vertical farm, has excited scientists, architects, and politicians around the globe. Now, in this groundbreaking book, Despommier explains how the vertical farm will have an incredible impact on changing the face of this planet for future generations. Despommier takes readers on an incredible journey inside the vertical farm, buildings filled with fruits and vegetables that will provide local food sources for entire cities. Vertical farms will allow us to: - Grow food 24 hours a day, 365 days a year - Protect crops from unpredictable and harmful weather - Re-use water collected from the indoor environment - Provide jobs for residents - Eliminate use of pesticides, fertilizers, or herbicides - Drastically reduce dependence on fossil fuels - Prevent crop loss due to shipping or storage - Stop agricultural runoff Vertical farms can be built in abandoned buildings and on deserted lots, transforming our cities into urban landscapes which will provide fresh food grown and harvested just around the corner. Possibly the most important aspect of vertical farms is that they can be built by nations with little or no arable land, transforming nations which are currently unable to farm into top food producers. In the tradition of the bestselling The World Without Us, The Vertical Farm is a completely original landmark work destined to become an instant classic.

The Gaia Principle: James Lovelock- 2015 Interview with James Lovelock, the creator of the Gaia hypothesis. Lovelock's eclecticism and scientific independence for nearly five decades allowed him to follow the logic of his own thinking no matter how original and unorthodox its conclusions. In 1979 he published Gaia: A New Look at Life on Earth in 1979, which rattled the scientific world and electrified the rest of us by arguing that the earth behaves like a single living organism that creates and maintains a viable environment for life. He has been described as "one of the great thinkers of our time," and he has been listed among the world's top 100 public intellectuals. He has been described as "the most important figure in both the life sciences and the climate sciences for the past half-century," and his stature has been compared to Darwin's.

Vital Reenchantments-Lauren Greyson 2019-01-14 Not all charms fly at the touch of cold philosophy. Vital Reenchantments examines so-called cold philosophy, or science, that does precisely the opposite - rather than mercilessly emptying out and unweaving, it operates as a philosophy that animates. More specifically, Greyson closely examines how a specific group of "poet-in-scientists" of the late 1970s and 1980s directed attention to the "wondrous" unfolding of life, at a time when the counter-culture in particular had made the institution of science synonymous with technologies of alienation and destruction. In this vein, Vital Reenchantments takes up E.O. Wilson's Biophilia (1984), James Lovelock's Gaia (1979), and Carl Sagan's Cosmos (1980), in order to show how each work fleshes out scientific concepts with a unique attention to "affective wonder," understood as the experience of ad tunement to novel effects. What is so unique about these works is that they reenchanted the scientific world without pandering to what Richard Dawkins will later term "cosmic sentimentality." Carl Sagan may have said "We are made of starstuff," but he would never insist, as Joni Mitchell did in 1969, that "we've got to get ourselves back to the garden." Instead, they insist on a third way that does not rely on the idea of an ecological Eden - a vigorously vital materialism in which the affective trumps the sentimental. Further, the historical emergence of these works, all published within 5 years of each other, was no accident: each book responded to an ever deepening sense of environmental crisis, certainly, but along with it they responded to, perhaps more than marginally related, narratives of the large-scale disenchantment brought on by modernity or science, and more often than not a mixture of the two. Greyson argues that the persistence of these works and their affectively-charged scientific concepts in contemporary popular culture and ecological thought is no accident. As such, these works deserve recognition as far more than "popular science" and can be seen as essential contributions to more contemporary vital materialist thought and ecological theory. No doubt this talk of enchantment and wonder, so tied to immediate experience, can seem trivial in the face of any number of environmental crises (global warming first among these) that do not just appear ominously on the horizon, but loom as never before. The first task of this book thus to pose the same question that Jane Bennett does at the end of her own work on enchantment: "How can someone write a book about enchantment in such a world?" Does this approach really provide, as Latour phrases it, "a way to bridge the distance between the scale of the phenomena we hear about and the tiny Umwelt inside which we witness, as if it were a fish inside its bowl, an ocean of catastrophes that are supposed to unfold"? Ultimately, Vital Reenchantments argues that affective ecologies, properly attended to, point toward an open present, one that broadens the horizons of the "fish bowl" and allows us to imagine engendering futures that are neither naively hopeful nor hopelessly apocalyptic.

J E Lovelock's Gaia Hypothesis-Stephanie Moans 1992

Encyclopedia of Atmospheric Sciences-Gerald R. North 2014-09-14 Encyclopedia of Atmospheric Sciences, 2nd Edition is an authoritative resource covering all aspects of atmospheric sciences, including both theory and applications. With more than 320 articles and 1,600 figures and photographs, this revised version of the award-winning first edition offers comprehensive coverage of this important field. The six volumes in this set contain broad-ranging articles on topics such as atmospheric chemistry, biogeochemical cycles, boundary layers, clouds, general circulation, global change, mesoscale meteorology, ozone, radar, satellite remote sensing, and weather prediction. The Encyclopedia is an ideal resource for academia, government, and industry in the fields of atmospheric, ocean, and environmental sciences. It is written at a level that allows undergraduate students to understand the material, while providing active researchers with the latest information in the field. Covers all aspects of atmospheric sciences—including both theory and applications Presents more than 320 articles and more than 1,600 figures and photographs Broad-ranging articles include topics such as atmospheric chemistry, biogeochemical cycles, boundary layers, clouds, general circulation, global change, mesoscale meteorology, ozone, radar, satellite remote sensing, and weather prediction An ideal resource for academia, government, and industry in the fields of atmospheric, ocean, and environmental sciences

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