Wonderful Life The Burgess Shale And Nature Of History Stephen Jay Gould

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Wonderful Life: The Burgess Shale and the Nature of History Vintage
The assassin's bullet misses, the Archduke's carriage moves forward, and a catastrophic war is avoided. So too with the history of life. Re-run the tape of life, as Stephen J. Gould claimed, and the outcome must be entirely different: an alien world, without humans and maybe not even intelligence. The history of life is littered with accidents: any twist or turn may lead to a completely different world. Now this view is being challenged. Simon Conway Morris explores the evidence demonstrating life's almost eerie ability to navigate to a single solution, repeatedly. Eyes, brains, tools, even culture: all are very much on the cards. So if these are all evolutionary inevitabilities, where are our counterparts across the galaxy? The tape of life can only run on a suitable planet, and it seems that such Earth-like planets may be much rarer than hoped. Inevitable humans, yes, but in a lonely Universe.

Aquagenesis Natural Resources Canada
Collects forty-four key segments from the late paleontologist and evolutionary biologist's books, papers, and essays, in a collection that includes an assortment of previously unpublished articles and speeches.

Ever Since Darwin: Reflections in Natural History Harvard University Press
Original essays by leading philosophers of science explore the question of whether metaphysics can and should be naturalised - conducted as part of natural science. They engage with a range of approaches and disciplines to argue that if metaphysics is to be capable of identifying objective truths, it must be continuous with and inspired by science.

Indica Random House India
An illustrated natural history of the Earth and its denizens combines paintings, drawings, and computer-generated images with a chronicle of the world's variegated organisms and species.

The Runes of Evolution Oxford University Press
By one of Britain's most gifted scientists: a magnificently daring and compulsively readable account of life on Earth (from the "big bang" to the advent of man), based entirely on the most original of all sources--the evidence of fossils. With excitement and driving intelligence, Richard Fortey guides us from the barren globe spinning in space, through the very earliest signs of life in the sulphurous hot springs and volcanic vents of the young planet, the appearance of cells, the slow creation of an atmosphere and the evolution of myriad forms of plants and animals that could then be sustained, including the magnificent era of the dinosaurs, and on to the last moment before the debut of Homo sapiens. Ranging across multiple scientific disciplines, explicating in wonderfully clear and refreshing prose their findings and arguments--about the origins of life, the causes of species extinctions and the first appearance of man--Fortey weaves this history out of the most delicate traceries left in rock, stone and earth. He also explains how, on each aspect of nature and life, scientists have reached the understanding we have today, who made the key discoveries, who their opponents were and why certain ideas won. Brimful of wit, fascinating personal experience and high scholarship, this book may well be our best introduction yet to the complex history of life on Earth. A Book-of-the-Month Club Main Selection With 32 pages of photographs

A Geoscience Guide to the Burgess Shale Smithsonian
Since its discovery in 1909 by Charles Doolittle Walcott, then Secretary of the Smithsonian Institution, the Burgess Shale in the Canadian Rocky Mountains has fascinated both scientists and the public with its plethora of weird wonders - life forms of the past so unfamiliar they cannot easily be assigned to known taxonomic groups. This century's most significant invertebrate fossil discovery, the Burgess Shale provides an unprecedented window into the explosive evolution during the Cambrian period that began about 540 million years ago, one of the most enigmatic episodes in the history of life. This book provides the first comprehensive set of illustrations of the extraordinary life forms revealed in the Burgess Shale. In addition to the more common fossilized hard skeletons, the Burgess Shale preserved the soft parts of these organisms, which provide a key to understanding the early evolution of the major groups of animals that inhabit the earth today. The Fossils of the Burgess Shale shows much remarkable detail - including digestive tracts and other internal organs - of creatures preserved in particles of mud fine enough to penetrate every crack and unevenness. The book begins with the history of exploration and research in the Burgess Shale, the geologic setting and preservation of the fossils, and a discussion of the Cambrian radiation, the period when almost all the major phyla of animals evolved. These introductory chapters are followed by 199 high-quality photographs and line drawings with detailed species accounts that describe important features of each specimen, as well as the ecology and taxonomy of each group. A complete list of all currently accepted species described from the Burgess Shale and a comprehensive bibliography follow the illustrations. The Fossil of the Burgess Shale is a compendium of fascinating Cambrian treasures that offer a rare glimpse into the nature of early life on our planet. They have figured prominently in recent evolutionary debates. The National Museum of Natural History, which houses more than 65,000 fossils collected by Walcott from the Burgess Shale, will open a new exhibition of the specimens in 1995.

Wonderful Life Vintage
The Highlands Controversy is a rich and perceptive account of the third and last major dispute in nineteenth-century geology stemming from the work of Sir Roderick Murchison. The earlier Devonian and Cambrian-Silurian controversies centered on whether the strata of Devon and Wales should be classified by lithological or paleontological criteria, but the Highlands dispute arose from the difficulties the Scottish Highlands presented to geologists who were just learning to decipher the very complex processes of mountain building and metamorphism. David Oldroyd follows this controversy into the last years of the nineteenth century, as geology was transformed by increasing professionalization and by the development of new field and laboratory techniques. In telling this story, Oldroyd's aim is to analyze how scientific knowledge is constructed within a competitive scientific community—how theory, empirical findings, and social factors interact in the formation of knowledge. Oldroyd uses archival material and his own extensive reconstruction of the nineteenth-century fieldwork in a case study showing how detailed maps and sections made it possible to understand the exceptionally complex geological structure of the Highlands An invaluable addition to the history of geology, The Highlands Controversy also makes important contributions to our understanding of the social and conceptual processes of scientific work, especially in times of heated dispute.

The Plurality of Worlds Field, B.C. : Burgess Shale Geoscience Foundation
Centring on the discovery in the Burgess Shale of 530 million year old fossils unique in age, preservation and diversity, this book challenges perceptions about man's place in the history of life.

The Crucible of Creation Random House
The arthropods contain more species than any other animal group, but the evolutionary pathways which led to their current diversity are still an issue of controversy. Arthropod Relationships provides an overview of our current understanding, responding to the new data arising from sequencing DNA, the discovery of new Cambrian fossils as direct evidence of early arthropod history, and developmental genetics. These new areas of research have stimulated a reconsideration of classical morphology and embryology. Arthropod Relationships is the first synthesis of the current debate to emerge: not since the volume edited by Gupta was published in 1979 has the arthropod phylogeny debate been, considered in this depth and breadth. Leaders in the various branches of arthropod biology have contributed to this volume. Chapters focus progressively from the general issues to the specific problems involving particular groups, and thence to a consideration of embryology and genetics. This wide range of disciplines is drawn on to approach an understanding of arthropod relationships, and to provide the most timely account of arthropod phylogeny. This book should be read by evolutionary biologists, palaeontologists, developmental geneticists and invertebrate zoologists. It will have a special interest for post-graduate students working in these fields.

Life Penguin (Non-Classics)
Expanded edition of definitive guide for professionals and amateurs presents valuable information about finding, preserving, and studying fossils. Over 1,500 drawings and photographs. "Readable . . . and remarkably comprehensive." — Chicago Sunday Tribune.

The Great Devonian Controversy Templeton Foundation Press

Wonderful Life: The Burgess Shale and the Nature of HistoryW. W. Norton & Company

Full House Harvard University Press
A study of the Burgess Shale, a sea bed 530 million years old, and attempts to tackle what the findings are and what it means

The Mismeasure of Man (Revised and Expanded) W. W. Norton & Company
In his final book, Gould offers a surprising and nuanced study of the complex relationship between our two great ways of knowing: science and the humanities, twin realms of knowledge that have been divided against each other for far too long.

The Flamingo's Smile: Reflections in Natural History W. W. Norton & Company
"Arguably the best work to date in the history of geology."—David R. Oldroyd, Science "After a superficial first glance, most readers of good will and broad knowledge might dismiss [this book] as being too much about too little. They would be making one of the biggest mistakes in their intellectual lives. . . . [It] could become one of our century's key documents in understanding science and its history."—Stephen Jay Gould, New York Review of Books "Surely one of the most important studies in the history of science of recent years, and arguably the best work to date in the history of geology."—David R. Oldroyd, Science

The Highlands Controversy W. W. Norton & Company
Gould shows why a more accurate way of understanding our world is to look at a given subject within its own context, to see it as a part of a spectrum of variation and then to reconceptualize trends as expansion or contraction of this “ full house ” of variation, and not as the progress or degeneration of an average value, or single thing.

Oracles of Science Ballantine Books
"There is no scientist today whose books I look forward to reading with greater anticipation of enjoyment and enlightenment than Stephen Jay Gould."—Martin Gardner Among scientists who write, no one illuminates as well as Stephen Jay Gould doesthe wonderful workings of the natural world. Now in a new volume of collected essays—his sixth since Ever Since Darwin—Gould speaks of the importance of unbroken connections within our own lives and to our ancestralgenerations. Along with way, he opens to us the mysteries of fish tails, frog calls, and other matters, and shows once and for all why we must take notice when a seemingly insignificant creature is threatened, like the land snail Partula from Moorea, whose extinction he movingly relates.

Wonderful Life Penguin
A major new book overturning our assumptions about how evolution works Earth ’ s natural history is full of fascinating instances of convergence: phenomena like eyes and wings and tree-climbing lizards that have evolved independently, multiple times. But evolutionary biologists also point out many examples of contingency, cases where the tiniest change—a random mutation or an ancient butterfly sneeze—caused evolution to take a completely different course. What role does each force really play in the constantly changing natural world? Are the plants and animals that exist today, and we humans ourselves, inevitabilities or evolutionary flukes? And what does that say about life on other planets? Jonathan Losos reveals what the latest breakthroughs in evolutionary biology can tell us about one of the greatest ongoing debates in science. He takes us around the globe to meet the researchers who are solving the deepest mysteries of life on Earth through their work in experimental evolutionary science. Losos himself is one of the leaders in this exciting new field, and he illustrates how experiments with guppies, fruit flies, bacteria, foxes, and field mice, along with his own work with anole lizards on Caribbean islands, are rewinding the tape of life to reveal just how rapid and predictable evolution can be. Improbable Destinies will change the way we think and talk about evolution. Losos's insights into natural selection and evolutionary change have far-reaching applications for protecting ecosystems, securing our food supply, and fighting off harmful viruses and bacteria. This compelling narrative offers a new understanding of ourselves and our role in the natural world and the cosmos.

Trilobite Wonderful Life: The Burgess Shale and the Nature of History
The definitive refutation to the argument of The Bell Curve. When published in 1981, The Mismeasure of Man was immediately hailed as a masterwork, the ringing answer to those who would classify people, rank them according to their supposed genetic gifts and limits. And yet the idea of innate limits—of biology as destiny—dies hard, as witness the attention devoted to The Bell Curve, whose arguments are here so effectively anticipated and thoroughly undermined by Stephen Jay Gould. In this edition Dr. Gould has written a substantial new introduction telling how and why he wrote the book and tracing the

subsequent history of the controversy on innateness right through The Bell Curve. Further, he has added five essays on questions of The Bell Curve in particular and on race, racism, and biological determinism in general. These additions strengthen the book's claim to be, as Leo J. Kamin of Princeton University has said, "a major contribution toward deflating pseudo-biological 'explanations' of our present social woes."

The Book of Life Cambridge University Press

How did human beings acquire imaginations that can conjure up untrue possibilities? How did the Universe become self-aware? In The Runes of Evolution, Simon Conway Morris revitalizes the study of evolution from the perspective of convergence, providing us with compelling new evidence to support the mounting scientific view that the history of life is far more predictable than once thought. A leading evolutionary biologist at the University of Cambridge, Conway Morris came into international prominence for his work on the Cambrian explosion (especially fossils of the Burgess Shale) and evolutionary convergence, which is the process whereby organisms not closely related (not monophyletic), independently evolve similar traits as a result of having to adapt to similar environments or ecological niches. In The Runes of Evolution, he illustrates how the ubiquity of convergence hints at an underlying framework whereby many outcomes, not least brains and intelligence, are virtually guaranteed on any Earth-like planet. Conway Morris also emphasizes how much of the complexity of advanced biological systems is inherent in microbial forms. By casting a wider net, The Runes of Evolution explores many neglected evolutionary questions. Some are remarkably general. Why, for example, are convergences such as parasitism, carnivory, and nitrogen fixation in plants concentrated in particular taxonomic hot spots? Why do certain groups have a particular propensity to evolve toward particular states? Some questions lead to unexpected evolutionary insights: If bees sleep (as they do), do they dream? Why is that insect copulating with an orchid? Why have sponges evolved a system of fiber optics? What do mantis shrimps and submarines have in common? If dinosaurs had not gone extinct what would have happened next? Will a saber-toothed cat ever re-evolve? Cona Morris observes: “ Even amongst the mammals, let alone the entire tree of life, humans represent one minute twig of a vast (and largely fossilized) arborescence. Every living species is a linear descendant of an immense string of now-vanished ancestors, but evolution itself is the very reverse of linear. Rather it is endlessly exploratory, probing the vast spaces of biological hyperspace. Indeed this book is a celebration of how our world is (and was) populated by a riot of forms, a coruscating tapestry of life. ” The Runes of Evolution is the most definitive synthesis of evolutionary convergence to be published to date.

Punctuated Equilibrium Springer Science & Business Media

More than any other modern scientists, Stephen Jay Gould has opened up to millions the wonders of evolutionary biology. His genius as an essayist lies in his unmatched ability to use his knowledge of the world, including popular culture, to illuminate the realm of science. Ever Since Darwin, Stephen Jay Gould's first book, has sold more than a quarter of a million copies. Like all succeeding collections by this unique writer, it brings the art of the scientific essay to unparalleled heights.