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

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Darwin's Legacy Bedford
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."

CAMBRIAN EXPLOSION Icon Books Asher draws on his experiences as a paleontologist and a religious believer, arguing that science does not contradict religious belief.

The Flamingo's Smile: Reflections in Natural History Seven Stories Press

"Provocative and delightfully discursive essays on natural history. . . . Gould is the Stan Musial of essay writing. He can work himself into a corkscrew of ideas and improbable allusions paragraph after paragraph and then, uncoiling, hit it with such power that his fans know they are experiencing the game of essay writing at its best."--John Noble Wilford, New York Times Book Review

Wonderful Life W. W. Norton & Company 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.

The Rise of Animals

W. W. Norton & Company

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.

FOSSILS OF BURGESS SHALE PB Field, B.C. : Burgess Shale Geoscience Foundation

Already an international bestseller, this completely revised edition updates the story of science's most bitter argument.

Bully for Brontosaurus:

Reflections in Natural History Harvard University Press
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.
The Crucible of Creation Smithsonian
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.

Wonderful Life [sound Recording] : the Burgess Shale and the Nature of History Oxford ; New York : Oxford University Press "A thrilling synthesis from a brilliant scientist who discovered one of the most important chapters in our history." —Sean B. Carroll Big History, the field that integrates traditional historical scholarship with scientific insights to study the full sweep of our universe, has so far been the domain of historians. Famed geologist Walter Alvarez—best known for the "Impact Theory" explaining dinosaur extinction—has instead championed a science-first approach to Big History. Here he wields his unique expertise to give us a new appreciation for the incredible occurrences—from the Big Bang to the formation of supercontinents, the dawn of the Bronze Age, and beyond—that have led to our improbable place in the universe.

Dawkins Vs. Gould W. W. Norton & Company

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

Darwin's Lost World

Ballantine Books

In 1972 Stephen Jay Gould took the scientific world by storm with his paper on punctuated equilibrium. Challenging a core assumption of Darwin's theory of evolution, it launched the controversial idea that the majority of species originates in geological moments (punctuations) and persists in stasis. Now,

thirty-five years later, Punctuated Equilibrium offers his only book-length testament on a theory he fiercely promoted, repeatedly refined, and tirelessly defended.

Arthropod Relationships

CreateSpace

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 JHU 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.

Full House Vintage

Fifty years ago, no one could explain mountains. Arguments about their origin were spirited, to say the least. Progressive scientists were ridiculed for their ideas. Most geologists thought the Earth was shrinking. Contracting like a hot ball of iron, shrinking and exposing ridges that became mountains. Others were quite sure the planet was expanding. Growth widened sea basins and raised mountains. There was yet another idea, the theory that the world's crust was broken into big plates that jostled around, drifting until they collided and jarred mountains into existence. That idea was invariably dismissed as pseudo-science. Or "utter damned rot" as one prominent scientist said. But the doubtful theory of plate tectonics prevailed. Mountains, earthquakes, ancient ice ages, even veins of gold and fields of oil are now seen as the offspring of moving tectonic plates. Just half a century ago, most geologists sternly rejected the idea of drifting continents. But a few

intrepid champions of plate tectonics dared to differ. The Mountain Mystery tells their story.

The Mismeasure of Man (Revised and Expanded) W. W. Norton & Company

Darwin made a powerful argument for evolution in the Origin of Species, based on all the evidence available to him. But a few things puzzled him. One was how inheritance works - he did not know about genes. This book concerns another of Darwin's Dilemmas, and the efforts of modern palaeontologists to solve it. What puzzled Darwin is that the most very ancient rocks, before the Cambrian, seemed to be barren, when he would expect them to be teeming with life. Darwin speculated that this was probably because the fossils had not been found yet. Decades of work by modern palaeontologists have indeed brought us amazing fossils from far beyond the Cambrian, from the depths of the Precambrian, so life was certainly around. Yet the fossils are enigmatic, and something does seem to happen around the Cambrian to speed up evolution drastically and produce many of the early forms of animals we know today. In this book, Martin Brasier, a leading palaeontologist working on early life, takes us

into the deep, dark ages of the Precambrian to explore Darwin's Lost World. Decoding the evidence in these ancient rocks, piecing together the puzzle of what happened over 540 million years ago to drive what is known as the Cambrian Explosion, is very difficult. The world was vastly different then from the one we know now, and we are in terrain with few familiar landmarks. Brasier is a master storyteller, and combines the account of what we now know of the strange creatures of these ancient times with engaging and amusing anecdotes from his expeditions to Siberia, Outer Mongolia, Barbuda, and other places, giving a vivid impression of the people, places, and challenges involved in such work. He ends by presenting his own take on the Cambrian Explosion, based on the picture emerging from this very active field of research. A vital clue involves worms - burrowing worms are one of the key signs of the start of the Cambrian. This is fitting: Darwin was inordinately fond of worms.

Fossils of the Burgess Shale W. W. Norton & Company

Lively and fascinating. . . . Gould] writes beautifully about science and the

wonders of nature.
Tracy Kidder
Time ' s Arrow, Time ' s Cycle Cambridge University Press
The Cambrian Period records one of the most extraordinary transitions in the history of life. Although animals may have first appeared nearly 700 million years ago, with the earliest sponges, their initial diversifications appear to have been modest until a richly diverse fossil fauna appeared abruptly about 170 million years later. In The Cambrian Explosion, Erwin and Valentine synthesize research from many fields to explain why there was such remarkable novelty of animal forms.
And Their Children After Them Cambridge University Press
" Get your head into the clouds with Aerial Geology. " —The New York Times Book Review Aerial Geology is an up-in-the-sky exploration of North America ' s 100 most spectacular geological formations. Crisscrossing the continent from the Aleutian Islands in Alaska to the Great Salt Lake in Utah and to the Chicxulub Crater in Mexico, Mary Caperton Morton brings you on a fantastic tour, sharing aerial and satellite photography, explanations on how each site was formed, and details on what makes each landform noteworthy. Maps and diagrams help illustrate the geological processes and clarify scientific concepts. Fact-filled, curious, and way more fun than the geology you remember from grade school, Aerial Geology is a must-have for the insatiably curious, armchair geologists, million-mile travelers, and anyone who has stared out the window of a plane and wondered what was below.
Wonderful Life: The

Burgess Shale and the Nature of History Penguin Paleontologist Simon Conway Morris provides a guided tour of the world's richest treasure trove of fossils--a fantastically rich deposit of bizarre and bewildering Cambrain fossils, located in Western Canada. 4 plates. 90 linecuts.

Evolution and Belief W. W. Norton & Company "[An] extraordinary book. . . . Mr. Gould is an exceptional combination of scientist and science writer. . . . He is thus exceptionally well placed to tell these stories, and he tells them with fervor and intelligence."—James Gleick, New York Times Book Review High in the Canadian Rockies is a small limestone quarry formed 530 million years ago called the Burgess Shale. It hold the remains of an ancient sea where dozens of strange creatures lived—a forgotten corner of evolution preserved in awesome detail. In this book Stephen Jay Gould explores what the Burgess Shale tells us about evolution and the nature of history.