Bringing Fossils To Life An Introduction To Paleobiology

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The Story of the Earth in 25 Rocks

Palaeontology, a fundamental topic in geology and evolutionary biology, has undergone exciting and rapid change in recent years. Contemporary debates on mass extinctions and the origin of life have had profound implications for our understanding of how life evolved. Basic Palaeontology is a comprehensive and accessible introduction to palaeontology. With in-depth analysis of basic principles and all the main fossil groups, this fully illustrated text presents new and exciting research on the origin and history of life. The text focuses on traditional topics such as marine invertebrate palaeontology and biostratigraphy, but also provides unique and unparalleled taxonomic coverage from microfossils to plants and vertebrates. Key Features include: - Covers important recent developments in macroevolution and mass extinctions - A strong focus on a statistical and quantitative approach, emphasising the vital importance of both applications and theory - Full coverage of the evolution of vertebrates and plants - Over 600 highly detailed illustrations - An accessible format with extensive boxed material and bullet points Basic Palaeontology is essential reading for undergraduate students of geology, environmental science and biology, taking courses in palaeontology, palaeobiology, palaeoecology or evolution, and will also be of interest to all those who have an interest in the origin of life and human evolution. Michael J Benton is a Reader in the Department of Geology, University of Bristol, UK. David A T Harper is a Lecturer in Geology at the Department of Geology, University College Galway, Ireland.

Fossil Insects

This is the paperback edition of the great pop-paleontology book with the fabulous art that inspired a show that toured the nation's natural history museums. In its own way it has inspired many people to take a new look at the fossil record and imagine creatures and things as they might have been—a blend of word and image unlike any other. From the Trade Paperback edition.

Kennewick Man

This book presents a comprehensive overview of the science of thehistory of life. Paleobiologists bring many analytical tools tobear in interpreting the fossil record and the book introduces thelatest techniques, from multivariate investigations of biogeographyand biostratigraphy to engineering analysis of dinosaur skulls, andfrom homeobox genes to cladistics. All the well-known fossil groups are included, includingmicrofossils and invertebrates, but an important feature is thethorough coverage of plants, vertebrates and trace fossils togetherwith discussion of the origins of both life and the metazoans. Allkey related subjects are introduced, such as systematics, ecology,evolution and development, stratigraphy and their roles inunderstanding where life came from and how it evolved anddiversified. Unique features of the book are the numerous case studies fromcurrent research that lead students to the primary literature,analytical and mathematical explanations and tools, together withassociated problem sets and practical schedules for instructors andstudents. “..any serious student of geology who does not pick thisbook off the shelf will be putting themselves at a hugedisadvantage. The material may be complex, but the text isextremely accessible and well organized, and the book ought to beessential reading for palaeontologists at undergraduate,postgraduate and more advanced levels—both in Britain as wellas in North America.” Falcon-Lang, H., Proc. Geol.Assoc. 2010 “…this is an excellent introduction to palaeontologyin general. It is well structured, accessibly written andpleasantly informative …..I would recommend this as astandard reference text to all my students withouthesitation.” David Norman Geol Mag 2010 Companion website This book includes a companion website at: ahref="http://www.blackwellpublishing.com/paleobiology"www.blackwellpublishing.com/paleobiology/a The website includes: · Anongoing database of additional Practical’s prepared bythe authors · Figuresfrom the text for downloading · Usefullinks for each chapter · Updatesfrom the authors

Bringing Words to Life

Describes the techniques that scientists use to use the information from dinosaur fossils to develop theories about their appearances, food, defenses, life cycles, and other aspects of their lives.

Sedimentary Geology

Written for a first course in sedimentary geology or sedimentary rocks and stratigraphy (with only an introductory geology/physical geology course as a prerequisite), Prothero and Schwab shows students how sedimentary strata serves geologists as a continuous record of Earth's history. The authors' conversational style, and focus on the important concepts make the book highly accessible to an undergraduate audience.

Index Fossils of North America

Over the past twenty years, paleontologists have made tremendous fossil discoveries, including fossils that mark the growth of whales, manatees, and seals from land mammals and the origins of elephants, horses, and rhinos. Today there exists an amazing diversity of fossil humans, suggesting we walked upright long before we acquired large brains, and new evidence from molecules that enable scientists to decipher the tree of life as never before. The fossil record is now one of the strongest lines of evidence for evolution. In this engaging and richly illustrated book, Donald R. Prothero weaves an entertaining though intellectually rigorous history out of the transitional forms and series that dot the fossil record. Beginning with a brief discussion of the nature of science and the "monkey business of creationism," Prothero tackles subjects ranging from flood geology and rock dating to neo-Darwinism and macroevolution. He covers the ingredients of the primordial soup, the effects of communal living, invertebrate transitions, the development of the backbone, the reign of the dinosaurs, the mammalian explosion, and the leap from chimpanzee to human. Prothero pays particular attention to the recent discovery of "missing links" that complete the fossil timeline and details the debate between biologists over the mechanisms driving the evolutionary process. Evolution is an absorbing combination of firsthand observation, scientific discovery, and trenchant analysis. With the teaching of evolution still an issue, there couldn't be a better moment for a book clarifying the nature and value of fossil evidence. Widely recognized as a leading expert in his field, Prothero demonstrates that the transformation of life on this planet is far more awe inspiring than the narrow view of extremists.

Bringing Dinosaur Bones to Life

Presents arguments for and against the existence of five notable cryptids and challenges the pseudoscience that furthers their legendary statuses, while providing an exploration of the nature and subculture of cryptozoology.

Bringing Fossils To Life: An Introduction To Paleobiology

"Exciting and engaging vocabulary instruction can set students on the path to a lifelong fascination with words. This book provides a research-based framework and practical strategies for vocabulary development with children from the earliest grades through high school. The authors emphasize instruction that offers rich information about words and their uses and enhances students' language comprehension and production. Teachers are guided in selecting words for instruction; developing student-friendly explanations of new words; creating meaningful learning activities; and getting students involved in thinking about, using, and noticing new words both within and outside the classroom. Many concrete examples, sample classroom dialogues, and exercises for teachers bring the material to life. Helpful appendices include suggestions for trade books that help children enlarge their vocabulary and/or have fun with different aspects of words"--

The Story of the Dinosaurs in 25 Discoveries

Throughout the four hundred thousand years that humanity has been collecting fossils, sea urchin fossils, or echinoids, have continually been among the most prized, from the Paleolithic era, when they decorated flint axes, to today, when paleobiologists study them for clues to the earth’s history. In The Star-Crossed Stone, Kenneth J. McNamara, an expert on fossil echinoids, takes readers on an incredible fossil hunt, with stops in history, paleontology, folklore, mythology, art, religion, and much more. Beginning with prehistoric times, when urchin fossils were used as jewelry, McNamara reveals how the fossil crept into the religious and cultural lives of societies around the world—the roots of the familiar five-pointed star, for example, can be traced to the pattern found on urchins. But McNamara’s vision is even broader than that: using our knowledge of early habits of fossil collecting, he explores the evolution of the human mind itself, drawing striking conclusions about humanity’s earliest appreciation of beauty and the first stirrings of artistic expression. Along the way, the fossil becomes a nexus through which we meet brilliant eccentrics and visionary archaeologists and develop new insights into topics as seemingly disparate as hieroglyphics, Beowulf, and even church organs. An idiosyncratic celebration of science, nature, and human ingenuity, The Star-Crossed Stone is as charming and

unforgettable as the fossil at its heart.

The Eocene-Oligocene Transition

This work is a story about organic molecules that can elucidate the long, interlinked history of the Earth and life, namely fossil molecules, found in rocks and petroleum. It is also the story of how a few maverick organic chemists and geologists reunited chemistry, biology and geology in a common endeavour.

Introduction to Paleobiology and the Fossil Record

One of the leading textbooks in its field, Bringing Fossils to Life applies paleobiological principles to the fossil record while detailing the evolutionary history of major plant and animal phyla. It incorporates current research from biology, ecology, and population genetics, bridging the gap between purely theoretical paleobiological textbooks and those that describe only invertebrate paleobiology and that emphasize cataloguing live organisms instead of dead objects. For this third edition Donald R. Prothero has revised the art and research throughout, expanding the coverage of invertebrates and adding a discussion of new methodologies and a chapter on the origin and early evolution of life.

Abominable Science

After a decade of new findings and interpretation based on innovative techniques during the 1980s, archaeologists were pretty sure that 38 million years ago the earth still basked in a subtropical "greenhouse" that had lasted since the age of dinosaurs, but 5 million years later there were glaciers in the Antarctic, signalling the beginning of the "icehouse" state that we know now. Here is a summary of the present understanding of the climatic and biological changes, for nonspecialists who have some familiarity with the terms and concepts of archaeology. Paper edition (08091-3), $24. Annotation copyright by Book News, Inc., Portland, OR

Palaeobiology II

A history of scientific illustration from the 15th century to the present day

Dinosaurs Without Bones

Palaeobiology: A Synthesis was widely acclaimed both for its content and production quality. Ten years on, Derek Briggs and Peter Crowther have once again brought together over 150 leading authorities from around the world to produce Palaeobiology II. Using the same successful formula, the content is arranged as a series of concise articles, taking a thematic approach to the subject, rather than treating the various fossil groups systematically. This entirely new book, with its diversity of new topics and over 100 new contributors, reflects the exciting developments in the field, including accounts of spectacular newly discovered fossils, and embraces data from other disciplines such as astrobiology, geochemistry and genetics. Palaeobiology II will be an invaluable resource, not only for palaeontologists, but also for students and researchers in other branches of the earth and life sciences. Written by an international team of recognised authorities in the field. Content is concise but informative. Demonstrates how palaeobiological studies are at the heart of a range of scientific themes.

Evolution Driven by Organismal Behavior

Almost from the day of its accidental discovery along the banks of the Columbia River in Washington State in July 1996, the ancient skeleton of Kennewick Man has garnered significant attention from scientific and Native American communities as well as public media outlets. This volume represents a collaboration among physical and forensic anthropologists, archaeologists, geologists, and geochemists, among others, and presents the results of the scientific study of this remarkable find. Scholars address a range of topics, from basic aspects of osteological analysis to advanced ?research focused on Kennewick Man’s origins and his relationships to other populations. Interdisciplinary studies, comprehensive data collection and preservation, and applications of technology are all critical to telling Kennewick Man’s story. Kennewick Man: The Scientific Investigation of an Ancient American Skeleton is written for a discerning professional audience, yet the absorbing story of the remains, their discovery, their curation history, and the extensive amount of detail that skilled scientists have been able to glean from them will appeal to interested and informed general readers. These bones lay silent for nearly nine thousand years, but now, with the aid of dedicated researchers, they can speak about the life of one of the earliest human occupants of North America.

Principles of Paleontology

The Fossil Fuel Revolution: Shale Gas and Tight Oil describes the remarkable new energy resources being obtained from shale gas and tight oil through a combination of directional drilling and staged hydraulic

fracturing, opening up substantial new energy reserves for the 21st Century. The book includes the history of shale gas development, the technology used to economically recover hydrocarbons, and descriptions of the ten primary shale gas resources of the United States. International shale resources, environmental concerns, and policy issues are also addressed. This book is intended as a reference on shale gas and tight oil for industry members, undergraduate and graduate students, engineers and geoscientists. Provides a cross-cutting view of shale gas and tight oil in the context of geology, petroleum engineering, and the practical aspects of production Includes a comprehensive description of productive and prospective shales in one book, allowing readers to compare and contrast production from different shale plays Addresses environmental and policy issues and compares alternative energy resources in terms of economics and sustainability Features an extensive resource list of peer-reviewed references, websites, and journals provided at the end of each chapter

The Artist and the Scientists

This book proposes a new way to think about evolution. The author carefully brings together evidence from diverse fields of science. In the process, he bridges the gaps between many different--and usually seen as conflicting--ideas to present one integrative theory named ONCE, which stands for Organic Nonoptimal Constrained Evolution. The author argues that evolution is mainly driven by the behavioral choices and persistence of organisms themselves, in a process in which Darwinian natural selection is mainly a secondary--but still crucial--evolutionary player. Within ONCE, evolution is therefore generally made of mistakes and mismatches and trial-and-error situations, and is not a process where organisms engage in an incessant, suffocating struggle in which they can't thrive if they are not optimally adapted to their habitats and the external environment. Therefore, this unifying view incorporates a more comprehensive view of the diversity and complexity of life by stressing that organisms are not merely passive evolutionary players under the rule of external factors. This insightful and well-reasoned argument is based on numerous fascinating case studies from a wide range of organisms, including bacteria, plants, insects and diverse examples from the evolution of our own species. The book has an appeal to researchers, students, teachers, and those with an interest in the history and philosophy of science, as well as to the broader public, as it brings life back into biology by emphasizing that organisms, including humans, are the key active players in evolution and thus in the future of life on this wonderful planet.

Echoes of Life

At a time when women were excluded from science, a young girl made a discovery that marked the birth of paleontology and continues to feed the debate about evolution to this day. Mary Anning was only twelve years old when, in 1811, she discovered the first dinosaur skeleton--of an ichthyosaur--while fossil hunting on the cliffs of Lyme Regis, England. Until Mary's incredible discovery, it was widely believed that animals did not become extinct. The child of a poor family, Mary became a fossil hunter, inspiring the tongue-twister, "She Sells Sea Shells by the Seashore." She attracted the attention of fossil collectors and eventually the scientific world. Once news of the fossils reached the halls of academia, it became impossible to ignore the truth. Mary's peculiar finds helped lay the groundwork for Charles Darwin's theory of evolution, laid out in his On the Origin of Species. Darwin drew on Mary's fossilized creatures as irrefutable evidence that life in the past was nothing like life in the present. A story worthy of Dickens, The Fossil Hunter chronicles the life of this young girl, with dirt under her fingernails and not a shilling to buy dinner, who became a world-renowned paleontologist. Dickens himself said of Mary: "The carpenter's daughter has won a name for herself, and deserved to win it." Here at last, Shelley Emling returns Mary Anning, of whom Stephen J. Gould remarked, is "probably the most important unsung (or inadequately sung) collecting force in the history of paleontology," to her deserved place in history.

Bring Back the King

First published in 1946, Charles R. Knight's Life Through the Ages was for many a beloved first look at the strange animals of the prehistoric past. For much of the 20th century, Knight's reconstructions were the key resource for popular images of ancient life. His paintings and drawings were displayed as part of museum exhibits, notably at the American Museum of Natural History in New York and the Field Museum in Chicago, were used as illustrations in numerous books and magazine articles, and even influenced movie portrayals of dinosaurs and other prehistoric beasts. Knight's work was highly regarded both for its artistic skill and for its scientific accuracy, closely based as it was on the knowledge of its time. Although new discoveries and ongoing research have changed the view of many of the animals depicted by Knight, his work remains valuable and is still treasured by the new generations of scientists and paleoartists. For this Commemorative Edition, many of Knight's original drawings were re-photographed. A new Foreword by Stephen Jay Gould reflects on Knight's work, and a new Introduction by Philip J. Currie discusses recent scientific findings and Knight's restorations.

Bringing Fossils to Life

Inside the epic quest to find life on the water-rich moons at the outer reaches of the solar system Where is the best place to find life beyond Earth? We often look to Mars as the most promising site in our solar system, but recent scientific missions have revealed that some of the most habitable real estate may actually lie farther away. Beneath the frozen crusts of several of the small, ice-covered moons of Jupiter and Saturn lurk vast oceans that may have been in existence for as long as Earth, and together may contain more than fifty times its total volume of liquid water. Could there be organisms living in their depths? Alien Oceans reveals the science behind the thrilling quest to find out. Kevin Peter Hand is one of today's leading NASA scientists, and his pioneering research has taken him on expeditions around the world. In this captivating account of scientific discovery, he brings together insights from planetary science, biology, and the adventures of scientists like himself to explain how we know that oceans exist within moons of the outer solar system, like Europa, Titan, and Enceladus. He shows how the exploration of Earth's oceans is informing our understanding of the potential habitability of these icy moons, and draws lessons from what we have learned about the origins of life on our own planet to consider how life could arise on these distant worlds. Alien Oceans describes what lies ahead in our search for life in our solar system and beyond, setting the stage for the transformative discoveries that may await us.

A History of Paleontology Illustration

Rare Earth

Palaeoentomology represents the interface between two huge scientific disciplines: palaeontology – the study of fossils, and entomology – the study of insects. However, fossils rarely feature extensively in books on insects, and likewise, insects rarely feature in books about fossils. Similarly, college or university palaeontology courses rarely have an entomological component and entomology courses do not usually consider the fossil record of insects in any detail. This is not due to a lack of insect fossils. The fossil record of insects is incredibly diverse in terms of taxonomic scope, age range (Devonian to Recent), mode of preservation (amber and rock) and geographical distribution (fossil insects have been recorded from all continents, including Antarctica). In this book the authors aim to help bridge the palaeontology–entomology gap by providing a broadly accessible introduction to some of the best preserved fossil insects from a wide range of deposits from around the globe, many of which are beautifully illustrated by colour photographs. Also covered are insect behaviour and ecology in the

fossil record, sub-fossil insects, trace fossils and insect species longevity. Just as insects are useful as ecological indicators today, the same can be expected to be true of the past. Such applications of the insect fossil record are briefly discussed. It is hoped that this book will encourage a few future researchers to enter the fascinating realm of palaeoentomology and to this end there is a section on how to become a palaeoentomologist. However, it is aimed at a much broader audience - those with an interest in fossils and/or insects in general, who will no doubt marvel at the diversity and excellent preservation of the fossils illustrated.

Life

"A rip-roaring tale, Fossil Men is one of those rare books that can be a prism through which to view the world, exposing the fabric of the Earth and illuminating the Tree of Life." —New York Times bestselling author Peter Nichols A behind-the-scenes account of the shocking discovery of the skeleton of “Ardi,” a human ancestor far older than Lucy - a find that shook the world of paleoanthropology and radically altered our understanding of human evolution. In 1994, a team led by fossil-hunting legend Tim White—”the Steve Jobs of paleoanthropology”—uncovered the bones of a human ancestor in Ethiopia’s Afar region. Radiometric dating of nearby rocks indicated the skeleton, classified as Ardipithecus ramidus, was 4.4 million years old, more than a million years older than “Lucy,” then the oldest known human ancestor. The findings challenged many assumptions about human evolution—how we started walking upright, how we evolved our nimble hands, and, most significantly, whether we were descended from an ancestor that resembled today’s chimpanzee—and repudiated a half-century of paleoanthropological orthodoxy. Fossil Men is the first full-length exploration of Ardi, the fossil men who found her, and her impact on what we know about the origins of the human species. It is a scientific detective story played out in anatomy and the natural history of the human body. Kermit Pattison brings into focus a cast of eccentric, obsessive scientists, including one of the world’s greatest fossil hunters, Tim White—an exacting and unforgiving fossil hunter whose virtuoso skills in the field were matched only by his propensity for making enemies; Gen Suwa, a Japanese savant who sometimes didn’t bother going home at night to devote more hours to science; Owen Lovejoy, a onetime creationist-turned-paleoanthropologist; Berhane Asfaw, who survived imprisonment and torture to become Ethiopia’s most senior paleoanthropologist and who fought for African scientists to gain equal footing in the study of human origins; and the Leakeys, for decades the most famous family in paleoanthropology. An intriguing tale of scientific discovery, obsession and rivalry that moves from the sun-baked desert of Africa and a nation caught in a brutal civil war, to modern high-tech labs and academic lecture halls, Fossil Men is popular

science at its best, and a must read for fans of Jared Diamond, Richard Dawkins, and Edward O. Wilson.

The Story of Evolution in 25 Discoveries

This is the first text to combine both paleontology and paleobiology. Traditional textbooks treat these separately, despite the recent trend to combine them in teaching. It bridges the gap between purely theoretical paleobiology and purely descriptive invertebrate paleontology books. The text is targeted at undergraduate geology and biology majors, with the emphasis on organisms, rather than dead objects to be described and catalogued. Current ideas from modern biology, ecology, population genetics, and many other concepts will be applied to the study of the fossil record.

The Story of Life in 25 Fossils

Nothing fills us with a sense of wonder like fossils. What looks at first like a simple rock is in fact a clue that reveals the staggering diversity of ancient environments, the winding pathways of evolution, and the majesty of a vanished earth. But as much as one might daydream of digging a hole in the backyard and finding a Tyrannosaurus, only a few places contain these buried treasures, and when a scientist comes across a remnant of prehistoric life, great care must be taken. What do budding paleontologists need to know before starting their search? In Fantastic Fossils, Donald R. Prothero offers an accessible, entertaining, and richly illustrated guide to the paleontologist’s journey. He details the best places to look for fossils, the art of how to find them, and how to classify the major types. Prothero provides expert wisdom about typical fossils that an average person can hope to collect and how to hunt fossils responsibly and ethically. He also explores the lessons that both common and rarer discoveries offer about paleontology and its history, as well as what fossils can tell us about past climates and present climate change. Captivating illustrations by the paleoartist Mary Persis Williams bring to life hundreds of important specimens. Offering valuable lessons for armchair enthusiasts and paleontology students alike, Fantastic Fossils is an essential companion for all readers who have ever dreamed of going in search of traces of a lost world.

Embryos in Deep Time

Every fossil tells a story. Prothero recounts the adventures behind the discovery of twenty-five famous, beautifully preserved fossils and explains their significance within the larger fossil record, creating

a riveting history of life on our planet.

Planet Ocean

Greenhouse of the dinosaurs -- Bad lands, good fossils -- Magnets and lasers -- "Punk eek" in the badlands -- Dinosaur battles -- Marine world -- Rocky mountain jungles and eel's ears -- From greenhouse to icehouse -- Once and future greenhouse?

The Fossil Hunter

The Artist and the Scientists: Bringing Prehistory to Life presents the extraordinary lives and works of eminent paleontologists Patricia Vickers-Rich and Tom Rich, and Peter Trusler, one of the finest artists of scientific realism Australia has produced. Over more than thirty years, Patricia, Tom and Peter have travelled across Eastern Europe, Asia, the Americas, Africa, Australia and New Zealand in search of the remains of early life, including fish, dinosaurs, birds and mammals. Their successful expeditions, and the many publications and exquisite artworks that have ensued, are a testament to their scientific methodology, thirst for knowledge and eye for detail. The book follows the development of selected works of art covering the last 600 million years of the geological record. Told from the viewpoints of both scientist and artist, the reader is given a unique insight into the process of preserving and recording the evolution of prehistoric life.

The Fossil Fuel Revolution

What determines whether complex life will arise on a planet, or even any life at all? Questions such as these are investigated in this groundbreaking book. In doing so, the authors synthesize information from astronomy, biology, and paleontology, and apply it to what we know about the rise of life on Earth and to what could possibly happen elsewhere in the universe. Everyone who has been thrilled by the recent discoveries of extrasolar planets and the indications of life on Mars and the Jovian moon Europa will be fascinated by Rare Earth, and its implications for those who look to the heavens for companionship.

Basic Palaeontology

Today, any kid can rattle off the names of dozens of dinosaurs. But it took centuries of scientific

effort—and a lot of luck—to discover and establish the diversity of dinosaur species we now know. How did we learn that Triceratops had three horns? Why don't many paleontologists consider Brontosaurus a valid species? What convinced scientists that modern birds are relatives of ancient Velociraptor? In The Story of the Dinosaurs in 25 Discoveries, Donald R. Prothero tells the fascinating stories behind the most important fossil finds and the intrepid researchers who unearthed them. In twenty-five vivid vignettes, he weaves together dramatic tales of dinosaur discoveries with what modern science now knows about the species to which they belong. Prothero takes us from eighteenth-century sightings of colossal bones taken for biblical giants through recent discoveries of enormous predators even larger than Tyrannosaurus. He recounts the escapades of the larger-than-life personalities who made modern paleontology, including scientific rivalries like the nineteenth-century "Bone Wars." Prothero also details how to draw the boundaries between species and explores debates such as whether dinosaurs had feathers, explaining the findings that settled them or keep them going. Throughout, he offers a clear and rigorous look at what paleontologists consider sound interpretation of evidence. An essential read for any dinosaur lover, this book teaches us to see an ancient world ruled by giant majestic creatures anew.

Fossil Men

The theory of evolution unites the past, present, and future of living things. It puts humanity's place in the universe into necessary perspective. Despite a history of controversy, the evidence for evolution continues to accumulate as a result of many separate strands of amazing scientific sleuthing. In The Story of Evolution in 25 Discoveries, Donald R. Prothero explores the most fascinating breakthroughs in piecing together the evidence for evolution. In twenty-five vignettes, he recounts the dramatic stories of the people who made crucial discoveries, placing each moment in the context of what it represented for the progress of science. He tackles topics like what it means to see evolution in action and what the many transitional fossils show us about evolution, following figures from Darwin to lesser-known researchers as they unlock the mysteries of the fossil record, the earth, and the universe. The book also features the stories of animal species strange and familiar, including humans—and our ties to some of our closest relatives and more distant cousins. Prothero's wide-ranging tales showcase awe-inspiring and bizarre aspects of nature and the powerful insights they give us into the way that life works. Brisk and entertaining while firmly grounded in fundamental science, The Story of Evolution in 25 Discoveries is a captivating read for anyone curious about the evidence for evolution and what it means for humanity.

Fantastic Fossils

Explains in a clear and concise manner the factors involved in the description and classification of fossils and the practical applications of paleontologic data

Alien Oceans

“[Bubbling] over with the joy of scientific discovery. . . . Great fun for anyone looking to revive their childhood dinosaur obsessions.” —Publishers Weekly, starred review What if we woke up one morning all of the dinosaur bones in the world were gone? How would we know these iconic animals had a 165-million year history on earth, and had adapted to all land-based environments from pole to pole? What clues would be left to discern not only their presence, but also to learn about their sex lives, raising of young, social lives, combat, and who ate who? What would it take for us to know how fast dinosaurs moved, whether they lived underground, climbed trees, or went for a swim? Welcome to the world of ichnology, the study of traces and trace fossils—such as tracks, trails, burrows, nests, toothmarks, and other vestiges of behavior—and how through these remarkable clues, we can explore and intuit the rich and complicated lives of dinosaurs. With a unique, detective-like approach, interpreting the forensic clues of these long-extinct animals that leave a much richer legacy than bones, Martin brings the wild world of the Mesozoic to life for the twenty-first-century reader.

Evolution

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

My Beloved Brontosaurus

A Hudson Booksellers Staff Pick for the Best Books of 2013 One of Publishers Weekly's Top Ten Spring Science Books A Bookshop Santa Cruz Staff Pick Dinosaurs, with their awe-inspiring size, terrifying claws and teeth, and otherworldly abilities, occupy a sacred place in our childhoods. They loom over museum halls, thunder through movies, and are a fundamental part of our collective imagination. In My Beloved Brontosaurus, the dinosaur fanatic Brian Switek enriches the childlike sense of wonder these amazing creatures instill in us. Investigating the latest discoveries in paleontology, he breathes new life into old bones. Switek reunites us with these mysterious creatures as he visits desolate excavation sites and hallowed museum vaults, exploring everything from the sex life of Apatosaurus and T. rex's feather-laden body to just why dinosaurs vanished. (And of course, on his journey, he celebrates the book's titular hero, "Brontosaurus"—who suffered a second extinction when we learned he never existed at all—as a symbol of scientific progress.) With infectious enthusiasm, Switek questions what we've long held to be true about these beasts, weaving in stories from his obsession with dinosaurs, which started when he was just knee-high to a Stegosaurus. Endearing, surprising, and essential to our understanding of our own evolution and our place on Earth, My Beloved Brontosaurus is a book that dinosaur fans and anyone interested in scientific progress will cherish for years to come.

The Star-Crossed Stone

If you could bring back just one animal from the past, what would you choose? It can be anyone or anything from history, from the King of the Dinosaurs, T. rex, to the King of Rock 'n' Roll, Elvis Presley, and beyond. De-extinction - the ability to bring extinct species back to life - is fast becoming reality. Around the globe, scientists are trying to de-extinct all manner of animals, including the woolly mammoth, the passenger pigeon and a bizarre species of flatulent frog. But de-extinction is more than just bringing back the dead. It's a science that can be used to save species, shape evolution and sculpt the future of life on our planet. In Bring Back the King, scientist and comedy writer Helen Pilcher goes on a quest to identify the perfect de-extinction candidate. Along the way, she asks if

Elvis could be recreated from the DNA inside a pickled wart, investigates whether it's possible to raise a pet dodo, and considers the odds of a 21st century Neanderthal turning heads on public transport. Pondering the practicalities and the point of de-extinction, Bring Back the King is a witty and wry exploration of what is bound to become one of the hottest topics in conservation - if not in science as a whole - in the years to come. READ THIS BOOK - the King commands it.

Life Through the Ages

The leading textbook in its field, this work applies paleobiological principles to the fossil record while detailing the evolutionary history of major plant and animal phyla. It incorporates current research from biology, ecology, and population genetics. Written for biology and geology undergrads, the text bridges the gap between purely theoretical paleobiology and solely descriptive invertebrate paleobiology books, emphasizing the cataloguing of live organisms over dead objects. This third edition revises art and research throughout, expands the coverage of invertebrates, includes a discussion of new methodologies, and adds a chapter on the origin and early evolution of life.

Greenhouse of the Dinosaurs

How can we bring together the study of genes, embryos and fossils? Embryos in Deep Time is a critical synthesis of the study of individual development in fossils. It brings together an up-to-date review of concepts from comparative anatomy, ecology and developmental genetics, and examples of different kinds of animals from diverse geological epochs and geographic areas. Can fossil embryos demonstrate evolutionary changes in reproductive modes? How have changes in ocean chemistry in the past affected the development of marine organisms? What can the microstructure of fossil bone and teeth reveal about maturation time, longevity and changes in growth phases? This book addresses these and other issues and documents with numerous examples and illustrations how fossils provide evidence not only of adult anatomy but also of the life history of individuals at different growth stages. The central topic of Biology today—the transformations occurring during the life of an organism and the mechanisms behind them—is addressed in an integrative manner for extinct animals.

Growing a Revolution: Bringing Our Soil Back to Life

Finalist for the PEN/E. O. Wilson Literary Science Writing Award “A call to action that underscores a

common goal: to change the world from the ground up."—Dan Barber, author of The Third Plate For centuries, agricultural practices have eroded the soil that farming depends on, stripping it of the organic matter vital to its productivity. Now conventional agriculture is threatening disaster for the world's growing population. In Growing a Revolution, geologist David R. Montgomery travels the world, meeting farmers at the forefront of an agricultural movement to restore soil health. From Kansas to Ghana, he sees why adopting the three tenets of conservation agriculture—ditching the plow, planting cover crops, and growing a diversity of crops—is the solution. When farmers restore fertility to the land, this helps feed the world, cool the planet, reduce pollution, and return profitability to family farms.

Bringing Fossils to Life

Every rock is a tangible trace of the earth's past. The Story of the Earth in 25 Rocks tells the fascinating stories behind the discoveries that shook the foundations of geology. In twenty-five chapters—each about a particular rock, outcrop, or geologic phenomenon—Donald R. Prothero recounts the scientific detective work that shaped our understanding of geology, from the unearthing of exemplary specimens to tectonic shifts in how we view the inner workings of our planet. Prothero follows in the footsteps of the scientists who asked—and answered—geology's biggest questions: How do we know how old the earth is? What happened to the supercontinent Pangea? How did ocean rocks end up at the top of Mount Everest? What can we learn about our planet from meteorites and moon rocks? He answers these questions through expertly chosen case studies, such as Pliny the Younger's firsthand account of the eruption of Vesuvius; the granite outcrops that led a Scottish scientist to theorize that the landscapes he witnessed were far older than Noah's Flood; the salt and gypsum deposits under the Mediterranean Sea that indicate that it was once a desert; and how trying to date the age of meteorites revealed the dangers of lead poisoning. Each of these breakthroughs filled in a piece of the greater puzzle that is the earth, with scientific discoveries dovetailing with each other to offer an increasingly coherent image of the geologic past. Summarizing a wealth of information in an entertaining, approachable style, The Story of the Earth in 25 Rocks is essential reading for the armchair geologist, the rock hound, and all who are curious about the earth beneath their feet.

Read More About Bringing Fossils To Life An Introduction To Paleobiology

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