Principles Of Geology Charles Lyell

Pleasure of imagination.... I a geologist have illdefined notion of land covered with ocean, former animals, slow force cracking surface &c truly poetical.--from Charles Darwin's Notebook M, 1838 The early nineteenth century was a golden age for the study of geology. New discoveries in the field were greeted with the same enthusiasm reserved today for advances in the biomedical sciences. In her long-awaited account of Charles Darwin's intellectual development, Sandra Herbert focuses on his geological training, research, and thought, asking both how geology influenced Darwin and how Darwin influenced the science. Elegantly written, extensively illustrated, and informed by the author's prodigious research in Darwin's papers and in the nineteenth-century history of earth sciences, Charles Darwin, Geologist provides a fresh perspective on the life and accomplishments of this exemplary thinker. As Herbert reveals, Darwin's great ambition as a young scientist--one he only partially realized--was to create a simple geology based on movements of the earth's crust. (Only one part of his scheme has survived in close to the form in which he imagined it: a theory explaining the structure and distribution of coral reefs.) Darwin collected geological specimens and took extensive notes on geology during all of his travels. His grand adventure as a geologist took place during the circumnavigation of the earth by H.M.S. Beagle (1831-1836)--the same voyage that informed his magnum opus, On the Origin of Species. Upon his return to England it was his geological findings that first excited scientific and public opinion. Geologists, including Darwin's former teachers, proved a receptive audience, the British government sponsored publication of his research, and the general public welcomed his discoveries about the earth's crust. Because of ill health, Darwin's years as a geological traveler ended much too soon: his last major geological fieldwork took place in Wales when he was only thirty-three. However, the experience had been transformative: the methods and hypotheses of Victorian-era geology, Herbert suggests, profoundly shaped Darwin's mind and his scientific methods as he worked toward a full-blown understanding of evolution and natural selection.

As important to modern world views as any work of Darwin, Marx, or Freud, Lyell's Principles of Geology has never before been available in paperback. In this third and final volume, Charles Lyell (1797-1875) devotes much attention to the "syntax of geology," that is, to a way of reconstructing the geological past on the basis of the "grammar" of the present processes he has described in the earlier volumes. He defines four periods of the Tertiary—Newer Pliocene, Older Pliocene, Miocene, and Eocene—and argues that the deposits dating from each period demonstrate the uniformity of processes and environments throughout the Tertiary, and indeed in earlier periods of earth history. Martin J. S. Rudwick has compiled a bibliography giving full references for the sources Lyell cites in all three volumes of the

Principles.

This book offers new interpretations of Tennyson’s major poems along-side contemporary geology, and specifically Charles Lyell’s Principles of Geology (1830-3). Employing various approaches – from close readings of both the poetic and geological texts, historical contextualisation and the application of Bakhtin’s concept of dialogism – the book demonstrates not only the significance of geology for Tennyson’s poetry, but the vital import of Tennyson’s poetics in explicating the implications of geology for the nineteenth century and beyond. Gender ideologies in The Princess (1847) are read via High Miller’s geology, while the writings of Lyell and other contemporary geologist, comparative anatomists and language theorists are examined along-side In Memoriam (1851) and Maud (1855). The book argues that Tennyson’s experimentation with Lyell’s geology produced a remarkable ‘uniformitarian’ poetics that is best understood via Bakhtinian theory; a poetics that reveals the seminal role methodologies in geology played in the development of divisions between science and culture, and that also, quite profoundly, anticipates the crisis in language later associated with the linguistic turn of the twentieth century.

A SUNDAY TIMES BOOK OF THE YEAR FOR 2017 A rich and exuberant group biography of the first geologists, the people who were first to excavate from the layers of the world its buried history. These first geologists were made up primarily, and inevitably, of gentlemen with the necessary wealth to support their interests, yet boosting their numbers, expanding their learning and increasing their findings were clergymen, academics – and women. This lively and eclectic collection of characters brought passion, eccentricity and towering intellect to geology and Brenda Maddox in Reading the Rocks does them full justice, bringing them to vivid life. The new science of geology was pursued by this assorted band because it opened a window on Earth's ancient past. They showed great courage in facing the conflict between geology and Genesis that immediately presented itself: for the rocks and fossils being dug up showed that the Earth was immeasurably old, rather than springing from a creation made in the six days that the Bible claimed. It is no coincidence that Charles Darwin was a keen geologist. The individual stories of these first geologists, their hope and fears, triumphs and disappointments, the theological, philosophical and scientific debates their findings provoked, and the way that as a group, they were to change irrevocably and dramatically our understanding of the world is told by Brenda Maddox with a storyteller's skill and a fellow scientist's understanding. The effect is absorbing, revelatory and strikingly original.

Rarely has a scholar attained such popular acclaim merely by doing what he does best and enjoys most. But such is Stephen Jay Gould’s command of paleontology and evolutionary theory, and his gift for brilliant explication, that he has brought dust and dead bones to life, and developed an immense following for the seeming arcana of this field. In Time’s Arrow, Time’s Cycle his subject is nothing less than geology’s signal contribution to human thought—the discovery of

“deep time,” the vastness of earth’s history, a history so ancient that we can comprehend it only as metaphor. He follows a single thread through three documents that mark the transition in our thinking from thousands to billions of years: Thomas Burnet’s four-volume Sacred Theory of the Earth (1680–1690), James Hutton’s Theory of the Earth (1795), and Charles Lyell’s three-volume Principles of Geology (1830–1833). Gould’s major theme is the role of metaphor in the formulation and testing of scientific theories—in this case the insight provided by the oldest traditional dichotomy of Judeo-Christian thought: the directionality of time’s arrow or the immanence of time’s cycle. Gould follows these metaphors through these three great documents and shows how their influence, more than the empirical observation of rocks in the field, provoked the supposed discovery of deep time by Hutton and Lyell. Gould breaks through the traditional “cardboard” history of geological textbooks (the progressive march to truth inspired by more and better observations) by showing that Burnet, the villain of conventional accounts, was a rationalist (not a theologically driven miracle-monger) whose rich reconstruction of earth history emphasized the need for both time’s arrow (narrative history) and time’s cycle (immanent laws), while Hutton and Lyell, our traditional heroes, denied the richness of history by their exclusive focus upon time’s arrow.

This ebook is comprised of Hutton's 1788 paper 'Theory of the Earth', read before the Royal Society of Edinburgh, as well as Volumes 1 and 2 of his book of the same name. Although his books, filled with long quotes in French, make difficult reading, Hutton deserves to be better known as one of the makers of the modern view of the Earth.

One of the key works in the nineteenth-century battle between science and Scripture, Charles Lyell's Principles of Geology (1830-33) sought to explain the geological state of the modern Earth by considering the long-term effects of observable natural phenomena. Written with clarity and a dazzling intellectual passion, it is both a seminal work of modern geology and a compelling precursor to Darwinism, exploring the evidence for radical changes in climate and geography across the ages and speculating on the progressive development of life. A profound influence on Darwin, Principles of Geology also captured the imagination of contemporaries such as Melville, Emerson, Tennyson and George Eliot, transforming science with its depiction of the powerful forces that shape the natural world.

There are four men whose life's work helped free science from the straitjacket of religion. Three of the four - Nicolaus Copernicus, Galileo Galilei, and Charles Darwin - are widely heralded for their breakthroughs. The fourth, James Hutton, is comparatively unknown. A Scottish gentleman farmer, Hutton's observations on his small tract of land led him to a theory that directly contradicted biblical claims that the Earth was only 6,000 years old. Telling the story not only of Hutton, but of the rich intellectual milieu of the Scottish Enlightenment, which brought together some of the greatest thinkers of the age - from David Hume and Adam Smith to James Watt and Erasmus Darwin - The Man Who Found Time is an enlightening, engaging narrative about a little-known man and the science he established.

The studies in this second volume by Martin Rudwick (the first being The New Science of Geology: Studies in the Earth Science in the Age of Reform) focus on the figures of Charles Lyell and Charles Darwin. Lyell rose to be of pivotal importance in the second quarter of the 19th century because he challenged other geologists throughout Europe by probing their methods and conclusions to the limit. While adopting their goal of reconstructing the contingent history of the earth, he claimed that the physical processes observable in action in the present could explain far more about the past than was commonly believed, and that it was unnecessary to postulate occasional catastrophic events of still greater intensity. Far more controversial was Lyell's further claim that the earth and its life had always been in a stable steady state, rather than developing in a broadly linear or directional fashion. His younger friend Charles Darwin first made his name as a Lyellian geologist; Darwin's early work in geology, studied here, provided important foundations for his later and more famous research on speciation and other biological problems.

As important to modern world views as any work of Darwin, Marx, or Freud, Principles of Geology is a landmark in the history of science. In this first of three volumes, Charles Lyell (1797-1875) sets forth his powerful uniformitarian argument: processes now visibly acting in the natural world are essentially the same as those that have acted throughout the history of the earth, and are sufficient to account for all geological phenomena. Martin J. S. Rudwick's new Introduction, summarizing the origins of the Principles, guides the reader through the structure of the entire three-volume first edition and considers the legacy of Lyell's great work.

Lyell first came to America in 1841, remaining for more than a year and touring widely. His immediate reason for the journey was to deliver the prestigious Lowell lectures in Boston. His larger purpose was to study the geology of North America, hoping that the vast scale of the continent - its mountain ranges, plains, Great Lakes, and rivers - would confirm his belief in the uniformity of geological history.

Secord gives a dazzlingly detailed account of this scientific trench warfare and its social consequences. One ends up with a marvellous feeling for the major taxonomic enterprises in Darwin's younger day: mapping, ordering, conquering 'taming the chaos" of the strata. All of these of course had social and imperial ramifications; and Secord mentions geology's moral appeal (in supporting a divinely-stratified Creation) to a beleaguered elite intent on subduing the lower orders. Originally published in 1986.

The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

In 1980, the science world was stunned when a maverick team of researchers proposed that a massive meteor strike had wiped the dinosaurs and other fauna from the Earth 66 million years ago. Scientists found evidence for this theory in a “crater of doom” on the Yucatán Peninsula, showing that our planet had once been a target in a galactic shooting gallery. In Cataclysms, Michael R. Rampino builds on the

latest findings from leading geoscientists to take “neocatastrophism” a step further, toward a richer understanding of the science behind major planetary upheavals and extinction events. Rampino recounts his conversion to the impact hypothesis, describing his visits to meteor-strike sites and his review of the existing geological record. The new geology he outlines explicitly rejects nineteenth-century “uniformitarianism,” which casts planetary change as gradual and driven by processes we can see at work today. Rampino offers a cosmic context for Earth’s geologic evolution, in which cataclysms from above in the form of comet and asteroid impacts and from below in the form of huge outpourings of lava in flood-basalt eruptions have led to severe and even catastrophic changes to the Earth’s surface. This new geology sees Earth’s position in our solar system and galaxy as the keys to understanding our planet’s geology and history of life. Rampino concludes with a controversial consideration of dark matter’s potential as a triggering mechanism, exploring its role in heating Earth’s core and spurring massive volcanism throughout geologic time.

"I can think of no better guides than Professors Ken Gregory and John Lewin to lead the reader through the conceptual basis of this exciting science." - Victor R. Baker, University of Arizona "A very readable and informative introduction to the discipline for senior undergraduates, postgraduates and researchers." - Angela Gurnell, Queen Mary University of London "Time will tell, but this book may well mark a turning point in the way students and scientists alike perceive Earth surface processes and landforms." - Jonathan Phillips, University of Kentucky This student focused book provides a detailed description and analysis of the key concepts, ideas, and hypotheses that inform geomorphology. Kenneth Gregory and John Lewin explain the basics of landform science in 20 concepts, each the subject of a substantive, cross-referenced entry. They use the idea of the 'geomorphic system' to organise entries in four sections, with extensive web resources provided for each: System Contexts: The Systems Approach / Uniformitarianism / Landform / Form, Process and Materials / Equilibrium / Complexity and Non Linear Dynamical Systems System Functioning: Cycles and cascades / Force-Resistance / Geomorphic work / Process Form Models System Adjustments: Timescales / Forcings / Change Trajectories / Inheritance and Sensitivity / Anthropocene Drivers for the Future: Geomorphic Hazards / Geomorphic Engineering / Design and Prediction Aligned with the teaching literature, this innovative text provides a fully-functioning learning environment for study, revision, and even self-directed research for both undergraduate and postgraduate students of geomorphology.

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