

## The Evolution Of Useful Things How Everyday Artifacts From Forks And Pins To Paper Clips Zippers Came Be As They Are Henry Petroski

Argues that failures in structural engineering are not necessarily due to the physical design of the structures, but instead a misunderstanding of how cultural and socioeconomic constraints would affect the structures.

A famed political scientist's classic argument for a more cooperative world We assume that, in a world ruled by natural selection, selfishness pays. So why cooperate? In *The Evolution of Cooperation*, political scientist Robert Axelrod seeks to answer this question. In 1980, he organized the famed Computer Prisoners Dilemma Tournament, which sought to find the optimal strategy for survival in a particular game. Over and over, the simplest strategy, a cooperative program called Tit for Tat, shut out the competition. In other words, cooperation, not unfettered competition, turns out to be our best chance for survival. A vital book for leaders and decision makers, *The Evolution of Cooperation* reveals how cooperative principles help us think better about everything from military strategy, to political elections, to family dynamics.

*A Better Pencil* puts our complex, still-evolving hate-love relationship with computers and the internet into perspective, describing how the digital revolution influences our reading and writing practices, and how the latest technologies differ from what came before.

Introduces the controversial theory of "group selection" in which all life on earth is portrayed as a macro-community of symbiotic organisms working together for the benefit of all. By the author of *The Lucifer Principle*.

"Physical infrastructure in the United States is crumbling. The American Society of Civil Engineers has, in its latest report, given American roads and bridges a grade of D and C+, respectively, and has described roughly sixty-five thousand bridges in the United States as 'structurally deficient.' This crisis--and one need look no further than the I-35W bridge collapse in Minnesota to see that it is indeed a crisis--shows little sign of abating short of a massive change in attitude amongst politicians and the American public. In *The Road Taken*, acclaimed historian Henry Petroski explores our core infrastructure from historical and contemporary perspectives and explains how essential their maintenance is to America's economic health. Recounting the long history behind America's highway system, Petroski reveals the genesis of our interstate numbering system (even roads go east-west, odd go north-south), the inspiration behind the center line that has divided roads for decades, and the creation of such taken-for-granted objects as guardrails, stop signs, and traffic lights--all crucial parts of our national and local infrastructure. His history of the rebuilding of the San Francisco-Oakland Bay Bridge reveals the complex and challenging interplay between government and industry inherent in the conception, funding, design, and building of major infrastructure projects, while his forensic analysis of the street he lives on--its potholes, gutters, and curbs--will engage homeowners everywhere. A compelling work of history, *The Road Taken* is also an urgent clarion call aimed at American citizens, politicians, and anyone with a vested interest in our economic well-being. The road we take in the next decade toward rebuilding our aging infrastructure will in large part determine our future national prosperity"--

Why has the durable paper shopping bag been largely replaced by its flimsy plastic counterpart? What circuitous chain of improvements led to such innovations as the automobile cup holder and the swiveling vegetable peeler? With the same relentless curiosity and lucid, witty prose he brought to his earlier books, Henry Petroski looks at some of our most familiar objects and reveals that they are, in fact, works in

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progress. For there can never be an end to the quest for the perfect design. To illustrate his thesis, Petroski tells the story of the paper drinking cup, which owes its popularity to the discovery that water glasses could carry germs. He pays tribute to the little plastic tripod that keeps pizza from sticking to the box and analyzes the numerical layouts of telephones and handheld calculators. *Small Things Considered* is Petroski at his most trenchant and provocative, casting his eye not only on everyday artifacts but on their users as well.

The New York Times bestselling author of *The Rational Optimist* and *Genome* returns with a fascinating argument for evolution that definitively dispels a dangerous, widespread myth: that we can command and control our world. Human society evolves. Change in technology, language, morality, and society is incremental, inexorable, gradual, and spontaneous. It follows a narrative, going from one stage to the next; it creeps rather than jumps; it has its own spontaneous momentum rather than being driven from outside; it has no goal or end in mind; and it largely happens by trial and error—a version of natural selection. Much of the human world is the result of human action but not of human design: it emerges from the interactions of millions, not from the plans of a few. Drawing on fascinating evidence from science, economics, history, politics, and philosophy, Matt Ridley demolishes conventional assumptions that the great events and trends of our day are dictated by those on high, whether in government, business, academia, or organized religion. On the contrary, our most important achievements develop from the bottom up. Just as skeins of geese form Vs in the sky without meaning to and termites build mud cathedrals without architects, so brains take shape without brain-makers, learning happens without teaching, and morality changes for no reason other than the prevailing fashion. Although we neglect, defy, and ignore them, bottom-up trends shape the world. The Industrial Revolution, cell phones, the rise of Asia, and the Internet were never planned; they happened. Languages emerged and evolved by a form of natural selection, as did common law. Torture, racism, slavery, and pedophilia—all once widely regarded as acceptable—are now seen as immoral despite the decline of religion in recent decades. In this wide-ranging and erudite book, Ridley brilliantly makes the case for evolution, rather than design, as the force that has shaped much of our culture, our technology, our minds, and that even now is shaping our future. As compelling as it is controversial, as authoritative as it is ambitious, Ridley's deeply thought-provoking book will change the way we think about the world and how it works.

Examines many of the failed designs and inventions that led to greater improvements citing as examples the 1940 collapse of the Tacoma Narrows Bridge and the space shuttle disasters.

Dan Lieberman has written an innovative, exhaustively researched and carefully argued book dealing with the evolution of the human head. In it he addresses three interrelated questions. First, why does the human head look the way it does? Second, why did these transformations occur? And third, how is something as complex and vital as the head so variable and evolvable? This book addresses these questions in three sections. The first set of chapters review how human and ape heads grow, both in terms of individual parts (organs and regions) and as an integrated whole. The second section reviews how the head performs its major functions: housing the brain, chewing, swallowing, breathing, vocalizing, thermoregulating, seeing, hearing, tasting, smelling, and balancing during locomotion. The final set of chapters review the fossil evidence for major transformations of the head during human evolution from the divergence of the human and ape lineages through the origins of *Homo sapiens*. These chapters use developmental and functional insights from the first two sections to speculate on the developmental and selective bases for these transformations.

Evil is coming. A dark malevolence the likes of which this world has never seen, and it comes straight from the depths of Hell. Darkness meant to destroy. A prophecy I am fated to fulfill but will most likely not survive. Through it all, Carrick Byrne has stood strong by my side.

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Something has deeply changed between me and the man I once despised, and all it took was a kiss of provocation for both of us to feel it. I know deep in my soul we're being guided by destiny, but I don't know if I can trust it. Carrick is holding something back, and I fear the consequences could be deadly once his truth is revealed. We're not ready, but calamity waits for no woman. I have discovered a power within myself I must learn to master. A new connection in the Underworld has been revealed to me, one that I hope is friend but is just as likely foe. We are in a race against time as we try to figure out how to stop the end of the world from occurring. The battle is coming, and I can only hope we're prepared for what happens next. The Evolution of Fae and Gods is book three of the Chronicles of the Stone Veil series and is best enjoyed if read in series order.

Exploring the role of engineers in transforming and shaping the modern world, the author of *The Evolution of Useful Things* elucidates the principles of engineering as he looks at such achievements as the English Channel tunnel, the Panama Canal, and the Hoover Dam. Reprint. 15,000 first printing.

Consider Miles Davis, horn held high, sculpting a powerful musical statement full of tonal patterns, inside jokes, and thrilling climactic phrases—all on the fly. Or think of a comedy troupe riffing on a couple of cues from the audience until the whole room is erupting with laughter. Or maybe it's a team of software engineers brainstorming their way to the next Google, or the Einsteins of the world code-cracking the mysteries of nature. Maybe it's simply a child playing with her toys. What do all of these activities share? With wisdom, humor, and joy, philosopher Stephen T. Asma answers that question in this book: imagination. And from there he takes us on an extraordinary tour of the human creative spirit. Guided by neuroscience, animal behavior, evolution, philosophy, and psychology, Asma burrows deep into the human psyche to look right at the enigmatic but powerful engine that is our improvisational creativity—the source, he argues, of our remarkable imaginal capacity. How is it, he asks, that a story can evoke a whole world inside of us? How are we able to rehearse a skill, a speech, or even an entire scenario simply by thinking about it? How does creativity go beyond experience and help us make something completely new? And how does our moral imagination help us sculpt a better society? As he shows, we live in a world that is only partly happening in reality. Huge swaths of our cognitive experiences are made up by “what-ifs,” “almosts,” and “maybes,” an imagined terrain that churns out one of the most overlooked but necessary resources for our flourishing: possibilities. Considering everything from how imagination works in our physical bodies to the ways we make images, from the mechanics of language and our ability to tell stories to the creative composition of self-consciousness, Asma expands our personal and day-to-day forms of imagination into a grand scale: as one of the decisive evolutionary forces that has guided human development from the Paleolithic era to today. The result is an inspiring look at the rich relationships among improvisation, imagination, and culture, and a privileged glimpse into the unique nature of our evolved minds.

In a book that is both groundbreaking and accessible, Daniel C. Dennett, whom Chet Raymo of *The Boston Globe* calls “one of the most provocative thinkers on the planet,” focuses his unerringly logical mind on the theory of natural selection, showing how Darwin's great idea transforms and illuminates our traditional view of humanity's place in the universe. Dennett vividly describes the theory itself and then extends Darwin's vision with impeccable arguments to their often surprising conclusions, challenging the views of some of the most famous scientists of our day.

Henry Petroski traces the origins of the pencil back to ancient Greece and Rome, writes factually and charmingly about its development over the centuries and around the world, and shows what the pencil can teach us about engineering and technology today.

The overwhelming majority of a software system's lifespan is spent in use, not in design or implementation. So, why does conventional

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wisdom insist that software engineers focus primarily on the design and development of large-scale computing systems? In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world. You'll learn the principles and practices that enable Google engineers to make systems more scalable, reliable, and efficient—lessons directly applicable to your organization. This book is divided into four sections: Introduction—Learn what site reliability engineering is and why it differs from conventional IT industry practices Principles—Examine the patterns, behaviors, and areas of concern that influence the work of a site reliability engineer (SRE) Practices—Understand the theory and practice of an SRE's day-to-day work: building and operating large distributed computing systems Management—Explore Google's best practices for training, communication, and meetings that your organization can use

An anniversary edition of an influential book that introduced a groundbreaking approach to the study of science, technology, and society. This pioneering book, first published in 1987, launched the new field of social studies of technology. It introduced a method of inquiry—social construction of technology, or SCOT—that became a key part of the wider discipline of science and technology studies. The book helped the MIT Press shape its STS list and inspired the Inside Technology series. The thirteen essays in the book tell stories about such varied technologies as thirteenth-century galleys, eighteenth-century cooking stoves, and twentieth-century missile systems. Taken together, they affirm the fruitfulness of an approach to the study of technology that gives equal weight to technical, social, economic, and political questions, and they demonstrate the illuminating effects of the integration of empirics and theory. The approaches in this volume—collectively called SCOT (after the volume's title) have since broadened their scope, and twenty-five years after the publication of this book, it is difficult to think of a technology that has not been studied from a SCOT perspective and impossible to think of a technology that cannot be studied that way. This collection of papers by scholars of technology and society, based on a National Academy of Engineering symposium, explores the process of mutual adjustment between information technologies and social institutions. The topics addressed include recent developments and likely futures in information technology, comparison of information technology to historical developments in other technologies, and the interaction of information technology with businesses, homes, property rights in information, and various hierarchies of social organization.

A concise introduction to the evolution of communication media, past, present, and future, this book is unique in that it treats both mass media—radio, television, and print—and interpersonal media—telephony, computer communication, and new technologies. The first part of *The Evolution of Media* describes the history and development of media technology. The second and third parts of the book develop a taxonomy for media and compare their technological requirements, applications, and other significant elements. The fourth part presents a simple methodology to help predict the success of new media products and services, using sample analyses to illustrate the process. *The Evolution of Media* is a useful supplement for foundational courses in mass communication and communication history, as well as a primer for anyone interested in understanding the big picture of communication media. From the first answering machine ("the electronic brain") and the Hoover vacuum cleaner to the SS Independence and the Bell telephone, the creations of Henry S. Dreyfuss have shaped the cultural landscape of the 20th century. Written in a robust, fresh style, this book offers an inviting mix of professional advice, case studies, and design history along with historical black-and-white

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photos and the author's whimsical drawings. In addition, the author's uncompromising commitment to public service, ethics, and design responsibility makes this masterful guide a timely read for today's designers.

A FINALIST FOR THE PULITZER PRIZE NAMED A BEST BOOK OF THE YEAR BY THE NEW YORK TIMES BOOK REVIEW, SMITHSONIAN, AND WALL STREET JOURNAL A major reimagining of how evolutionary forces work, revealing how mating preferences—what Darwin termed "the taste for the beautiful"—create the extraordinary range of ornament in the animal world. In the great halls of science, dogma holds that Darwin's theory of natural selection explains every branch on the tree of life: which species thrive, which wither away to extinction, and what features each evolves. But can adaptation by natural selection really account for everything we see in nature? Yale University ornithologist Richard Prum—reviving Darwin's own views—thinks not. Deep in tropical jungles around the world are birds with a dizzying array of appearances and mating displays: Club-winged Manakins who sing with their wings, Great Argus Pheasants who dazzle prospective mates with a four-foot-wide cone of feathers covered in golden 3D spheres, Red-capped Manakins who moonwalk. In thirty years of fieldwork, Prum has seen numerous display traits that seem disconnected from, if not outright contrary to, selection for individual survival. To explain this, he dusts off Darwin's long-neglected theory of sexual selection in which the act of choosing a mate for purely aesthetic reasons—for the mere pleasure of it—is an independent engine of evolutionary change. Mate choice can drive ornamental traits from the constraints of adaptive evolution, allowing them to grow ever more elaborate. It also sets the stakes for sexual conflict, in which the sexual autonomy of the female evolves in response to male sexual control. Most crucially, this framework provides important insights into the evolution of human sexuality, particularly the ways in which female preferences have changed male bodies, and even maleness itself, through evolutionary time. *The Evolution of Beauty* presents a unique scientific vision for how nature's splendor contributes to a more complete understanding of evolution and of ourselves.

Moral thinking pervades our practical lives, but where did this way of thinking come from, and what purpose does it serve? Is it to be explained by environmental pressures on our ancestors a million years ago, or is it a cultural invention of more recent origin? In *The Evolution of Morality*, Richard Joyce takes up these controversial questions, finding that the evidence supports an innate basis to human morality. As a moral philosopher, Joyce is interested in whether any implications follow from this hypothesis. Might the fact that the human brain has been biologically prepared by natural selection to engage in moral judgment serve in some sense to vindicate this way of thinking—staving off the threat of moral skepticism, or even undergirding some version of moral realism? Or if morality has an adaptive explanation in genetic terms—if it is, as Joyce writes, "just something that helped our ancestors make more babies"—might such an explanation actually undermine morality's central role in our lives? He carefully examines both the evolutionary "vindication of morality" and the evolutionary "debunking of morality," considering the skeptical view more seriously than have others who have treated the subject. Interdisciplinary and combining the latest results from the empirical sciences with philosophical discussion, *The Evolution of Morality* is one of the few books in this area written from the perspective of moral philosophy. Concise and without technical jargon, the arguments are rigorous but accessible to readers from different academic

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backgrounds. Joyce discusses complex issues in plain language while advocating subtle and sometimes radical views. The Evolution of Morality lays the philosophical foundations for further research into the biological understanding of human morality. This book charts the evolution of metaphysics since Descartes and provides a compelling case for why metaphysics matters. Biodiversity-the genetic variety of life-is an exuberant product of the evolutionary past, a vast human-supportive resource (aesthetic, intellectual, and material) of the present, and a rich legacy to cherish and preserve for the future. Two urgent challenges, and opportunities, for 21st-century science are to gain deeper insights into the evolutionary processes that foster biotic diversity, and to translate that understanding into workable solutions for the regional and global crises that biodiversity currently faces. A grasp of evolutionary principles and processes is important in other societal arenas as well, such as education, medicine, sociology, and other applied fields including agriculture, pharmacology, and biotechnology. The ramifications of evolutionary thought also extend into learned realms traditionally reserved for philosophy and religion. The central goal of the In the Light of Evolution (ILE) series is to promote the evolutionary sciences through state-of-the-art colloquia-in the series of Arthur M. Sackler colloquia sponsored by the National Academy of Sciences-and their published proceedings. Each installment explores evolutionary perspectives on a particular biological topic that is scientifically intriguing but also has special relevance to contemporary societal issues or challenges. This tenth and final edition of the In the Light of Evolution series focuses on recent developments in phylogeographic research and their relevance to past accomplishments and future research directions. A celebration culture and technology, as seen through the history of the humble yet ubiquitous toothpick, from the best-selling author of The Pencil. From ancient Rome, where emperor Nero made his entrance into a banquet hall with a silver toothpick in his mouth, to nineteenth-century Boston, where Charles Forster, the father of the American wooden toothpick industry, ensured toothpicks appeared in every restaurant, the toothpick has been an omnipresent, yet often overlooked part of our daily lives. Here, with an engineer's eye for detail and a poet's flair for language, Henry Petroski takes us on an incredible tour of this most interesting invention. Along the way, he peers inside today's surprisingly secretive toothpick-manufacturing industry, and explores a treasure trove of the toothpick's unintended uses and perils, from sandwiches to martinis and beyond. Sex is as fascinating to scientists as it is to the rest of us. A vast pool of knowledge, therefore, has been gleaned from research into the nature of sex, from the contentious problem of why the wasteful reproductive process exists at all, to how individuals choose their mates and what traits they find attractive. This fascinating book explores those findings, and their implications for the sexual behaviour of our own species. It uses the Red Queen from 'Alice in Wonderland' – who has to run at full speed to stay where she is – as a metaphor for a whole range of sexual behaviours. The book was shortlisted for the 1994 Rhone-Poulenc Prize for Science Books. 'Animals and plants evolved sex to fend off parasitic infection. Now look where it has got us. Men want BMWs, power and money in order to pair-bond with women who are blonde, youthful and narrow-waisted ... a brilliant examination of the scientific debates on the hows and whys of sex and evolution' Independent. "A work of enormous breadth, likely to pleasantly surprise both general readers and experts."—New York Times Book Review This

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revolutionary book provides fresh answers to long-standing questions of human origins and consciousness. Drawing on his breakthrough research in comparative neuroscience, Terrence Deacon offers a wealth of insights into the significance of symbolic thinking: from the co-evolutionary exchange between language and brains over two million years of hominid evolution to the ethical repercussions that followed man's newfound access to other people's thoughts and emotions. Informing these insights is a new understanding of how Darwinian processes underlie the brain's development and function as well as its evolution. In contrast to much contemporary neuroscience that treats the brain as no more or less than a computer, Deacon provides a new clarity of vision into the mechanism of mind. It injects a renewed sense of adventure into the experience of being human.

The Evolution of Useful ThingsVintage

A look at the origin of everyday household items examines the Phillips-head screwdriver, paper clips, Post-its, fast-food "clamshell" containers, and other items. Reprint. 30,000 first printing.

The groundbreaking, provocative book that uses evolutionary psychology to explain human mating and the mysteries of love. If we all want love, why is there so much conflict in our most cherished relationships? To answer this question we must look into our evolutionary past, argues prominent psychologist David M. Buss. Based on one of the largest studies of human mating ever undertaken, encompassing more than 10,000 people of all ages from thirty-seven cultures worldwide, *The Evolution of Desire* is the first work to present a unified theory of human mating behavior. Drawing on a wide range of examples of mating behavior -- from lovebugs to elephant seals, from the Yanomamö tribe of Venezuela to online dating apps -- Buss reveals what women want, what men want, and why their desires radically differ. Love has a central place in human sexual psychology, but conflict, competition, and manipulation also pervade human mating -- something we must confront in order to control our own mating destiny. Updated to reflect the very latest scientific research on human mating, this definitive edition of this classic work of evolutionary psychology explains the powerful forces that shape our most intimate desires.

Case histories of engineering success and failure are presented to enrich understanding of the design process.

With an eye to the entire range of human evolutionary history, a study of human development examines cross-cultural and universal characteristics of growth from infancy to adolescence.

"Elevator Systems of the Eiffel Tower, 1889" by Robert M. Vogel. Published by Good Press. Good Press publishes a wide range of titles that encompasses every genre. From well-known classics & literary fiction and non-fiction to forgotten?or yet undiscovered gems?of world literature, we issue the books that need to be read. Each Good Press edition has been meticulously edited and formatted to boost readability for all e-readers and devices. Our goal is to produce eBooks that are user-friendly and accessible to everyone in a high-quality digital format.

From the author of the highly praised *The Pencil* and *The Evolution of Useful Things* comes another captivating history of the seemingly mundane: the book and its storage. Most of us take for granted that our books are vertical on our shelves with the spines facing out, but Henry Petroski, inveterately curious engineer, didn't. As a result, readers are guided along the astonishing

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evolution from papyrus scrolls boxed at Alexandria to upright books shelved at the Library of Congress. Unimpeachably researched, enviably written, and charmed with anecdotes from Seneca to Samuel Pepys to a nineteenth-century bibliophile who had to climb over his books to get into bed, *The Book on the Bookshelf* is indispensable for anyone who loves books. Language, more than anything else, is what makes us human. It appears that no communication system of equivalent power exists elsewhere in the animal kingdom. Any normal human child will learn a language based on rather sparse data in the surrounding world, while even the brightest chimpanzee, exposed to the same environment, will not. Why not? How, and why, did language evolve in our species and not in others? Since Darwin's theory of evolution, questions about the origin of language have generated a rapidly-growing scientific literature, stretched across a number of disciplines, much of it directed at specialist audiences. The diversity of perspectives - from linguistics, anthropology, speech science, genetics, neuroscience and evolutionary biology - can be bewildering. Tecumseh Fitch cuts through this vast literature, bringing together its most important insights to explore one of the biggest unsolved puzzles of human history.

How did the table fork acquire a fourth tine? What advantage does the Phillips-head screw have over its single-grooved predecessor? Why does the paper clip look the way it does? What makes Scotch tape Scotch? In this delightful book Henry, Petroski takes a microscopic look at artifacts that most of us count on but rarely contemplate, including such icons of the everyday as pins, Post-its, and fast-food "clamshell" containers. At the same time, he offers a convincing new theory of technological innovation as a response to the perceived failures of existing products—suggesting that irritation, and not necessity, is the mother of invention.

An illuminating, entertaining tour of the physical imperfections that make us human We humans like to think of ourselves as highly evolved creatures. But if we are supposedly evolution's greatest creation, why do we have such bad knees? Why do we catch head colds so often—two hundred times more often than a dog does? How come our wrists have so many useless bones? Why is the vast majority of our genetic code pointless? And are we really supposed to swallow and breathe through the same narrow tube? Surely there's been some kind of mistake. As professor of biology Nathan H. Lents explains in *Human Errors*, our evolutionary history is nothing if not a litany of mistakes, each more entertaining and enlightening than the last. The human body is one big pile of compromises. But that is also a testament to our greatness: as Lents shows, humans have so many design flaws precisely because we are very, very good at getting around them. A rollicking, deeply informative tour of humans' four billion year long evolutionary saga, *Human Errors* both celebrates our imperfections and offers an unconventional accounting of the cost of our success.

"Hidalgo has made a bold attempt to synthesize a large body of cutting-edge work into a readable, slender volume. This is the future of growth theory." -- Financial Times What is economic growth? And why, historically, has it occurred in only a few places? Previous efforts to answer these questions have focused on institutions, geography, finances, and psychology. But according to MIT's antidisciplinarian Cér Hidalgo, understanding the nature of economic growth demands transcending the social sciences and

