

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

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 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.

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.

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.

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 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.

By the author of *THE DESIGN OF EVERYDAY THINGS*. Insightful and whimsical, profoundly intelligent and easily accessible, Don Norman has been exploring the design of our world for decades, exploring this complex relationship between humans and machines. In this seminal work, fully revised and updated, Norman gives us the first steps towards demanding a person-centered redesign of the machines we use every day. Humans have always worked with objects to extend our cognitive powers, from counting on our fingers to designing massive supercomputers. But advanced technology does more than merely assist with memory—the machines we create begin to shape how we think and, at times, even what we value. In *THINGS THAT MAKE US SMART*, Donald Norman explores the complex interaction between human thought and the technology it creates, arguing for the development of machines that fit our minds, rather than minds that must conform to the machine.

This volume contains a detailed insight into the life and work of the wheelwright. The object of "The Craftsman Series" is to make this literature available in a form convenient for school use. The series consists entirely of books in which the craftsman speaks for himself, and in every volume the text is solely that of the author. George Sturt, the author of this volume, was a lover of the English countryside. Before the publication of 'The Wheelwright's Shop' in 1923 he had written several other books on rural topics, including 'The

Memoirs of a Surrey Labourer', 'The Bettesworth Book', and 'A Farmer's Life'. The chapters of this book include: 'The Wheelwright's Shop', 'Timber – Buying', 'Timber – Carting and Converting', 'The Sawyers', 'Timber – Seasoning', 'Wheel-Stuff', 'Hand-Work', 'Bottom-Timbers', 'Wagons', 'Learning the Trade', 'Wheels – Spokes and Felloes', 'The Smith – "Getting Ready"', et cetera. This volume is being republished now complete with a specially-commissioned biography of the author.

An enchanting biography of the most resonant—and most necessary—chemical element on Earth. Carbon is everywhere: in the paper of this book and the blood of our bodies. It's with us from beginning to end, present in our baby clothes and coffin alike. We live on a carbon planet, and we are carbon life. No other element is so central to our well-being; yet, when missing or misaligned, carbon atoms can also bring about disease and even death. At once ubiquitous and mysterious, carbon holds the answers to some of humanity's biggest questions. Where did Earth come from? What will ultimately become of it—and of us? With poetic storytelling, earth scientist Robert M. Hazen explores the universe to discover the past, present, and future of life's most essential element. We're not only "made of star stuff," as Carl Sagan famously observed, but "Big Bang stuff," too. Hazen reveals that carbon's grand symphony began with a frenzied prelude shortly after the dawn of creation, bringing new attention to the tiny number of Big Bang-created carbon atoms that often get overlooked. In minutes, violently colliding protons and neutrons improbably formed the first carbon atoms, which can still be found within our bodies. His book then unfolds in four movements, building momentum as he explores carbon as the element of Earth, Air, Fire, and Water. He visits the famed volcanic crater Solfatara di Pozzuoli near Naples, where venting carbon dioxide and other noxious fumes condense into beautiful crystals. He climbs the cliffs of the Scottish Highlands and delves deep into the precious-metal mines of Namibia, journeying toward Earth's mysterious core in search of undocumented carbon structures. Hazen often asks us to pause and consider carbon's role in climate change and what we can do about it, for our lives and this element are inextricably intertwined. With prose that sparkles like a diamond, *Symphony in C* tells the story of carbon, in which we all have a part.

"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.

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.

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.

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.

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.

An exploration of the extreme weapons we see in the animal world—teeth, horns and claws—draws parallels to the way humans develop and employ our own weapons.

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.

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

"A supremely enjoyable, intoxicating work." —Nature How did we come to have minds? For centuries, poets, philosophers, psychologists, and physicists have wondered how the human mind developed its unrivaled abilities. Disciples of Darwin have explained how natural selection produced plants, but what about the human mind? In *From Bacteria to Bach and Back*, Daniel C. Dennett builds on recent discoveries from biology and computer science to show, step by step, how a comprehending mind could in fact have arisen from a mindless process of natural selection. A crucial shift occurred when humans developed the ability to share memes, or ways of doing things not based in genetic instinct. Competition among memes produced thinking tools powerful enough that our minds don't just perceive and react, they create and comprehend. An agenda-setting book for a new generation of philosophers and scientists, *From Bacteria to Bach and Back* will delight and entertain all those curious about how the mind works.

Henry Petroski's previous bestsellers have delighted readers with intriguing stories about the engineering marvels around us, from the lowly pencil to the soaring suspension bridge. In this book, Petroski delves deeper into the mystery of invention, to explore what everyday artifacts and sophisticated networks can reveal about the way engineers solve problems. Engineering entails more than knowing the way things work. What do economics and ecology, aesthetics and ethics, have to do with the shape of a paper clip, the tab of a beverage can, the cabin design of a turbojet, or the course of a river? How do the idiosyncrasies of individual engineers, companies, and communities leave their mark on projects from Velcro® to fax machines to waterworks? *Invention by Design* offers an insider's look at these political and cultural dimensions of design and development, production and construction. Readers unfamiliar with engineering will find Petroski's enthusiasm contagious, whether the topic is the genesis of the Ziploc baggie or the averted collapse of Manhattan's sleekest skyscraper. And those who inhabit the world of engineering will discover insights to challenge their customary perspective, whether their work involves failure analysis, systems design, or public relations. Written with the flair that readers have come to expect from his books, *Invention by Design* reaffirms Petroski as the master explicator of the principles and processes that turn thoughts into the many things that define our made world.

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.

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.

The Evolution of Useful ThingsVintage

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.

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.

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.

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

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.

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.

"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"--

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.

This collection of informative and pleasurable essays by Henry Petroski elucidates the role of engineers in shaping our environment in countless ways, big and small. In *Remaking the World* Petroski gravitates this time, perhaps, toward the big: the English Channel tunnel, the Panama Canal, Hoover Dam, the QE2, and the Petronas Twin Towers in Malaysia, now the tallest buildings in the world. He profiles Charles Steinmetz, the genius of the General Electric Company; Henry Martyn Robert, a military engineer who created Robert's Rules of Order; and James Nasmyth, the Scotsman whose machine tools helped shape nineteenth-century ocean and rail transportation. Petroski sifts through the fossils of technology for cautionary tales and remarkable twists of fortune, and reminds us that failure is often a necessary step on the path to new discoveries. He explains soil mechanics by way of a game of "rock, scissors, paper," and clarifies fundamental principles of engineering through the spokes of a Ferris wheel. Most of all, Henry Petroski continues to celebrate the men and women whose scrawls on the backs of envelopes have immeasurably improved our world.

Updated classic explores importance of technological innovation in cultural and economic history of the West. Water wheels, clocks, printing, machine tools, more. "Without peer." — American Scientist.

Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, *Teaching About Evolution and the Nature of Science* provides a well-structured framework for understanding and teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. *Teaching About Evolution and the Nature of Science* builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards. Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community.

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

