

# The Idea Factory Bell Labs And The Great Age Of American Innovation

"From the director of the famed MIT Media Laboratory comes an exhilarating behind the-scenes exploration of the research center where our nation's foremost scientists are creating the innovative new technologies that will transform our future"--

"The fascinating story of how Unix began and how it took over the world. Brian Kernighan was a member of the original group of Unix developers, the creator of several fundamental Unix programs, and the co-author of classic books like "The C Programming Language" and "The Unix Programming Environment."--

Widely known and used throughout the astrodynamics and aerospace engineering communities, this teaching text was developed at the U.S. Air Force Academy. Completely revised and updated 2013 edition.

The definitive history of America ' s greatest incubator of innovation and the birthplace of some of the 20th century ' s most influential technologies “ Filled with colorful characters and inspiring lessons . . . The Idea Factory explores one of the most critical issues of our time: What causes innovation? ” —Walter Isaacson, The New York Times Book Review “ Compelling . . . Gertner's book offers fascinating evidence for those seeking to understand how a society should best invest its research resources. ” —The Wall Street Journal From its beginnings in the 1920s until its demise in the 1980s, Bell Labs-officially, the research and development wing of AT&T-was the biggest, and arguably the best, laboratory for new ideas in the world. From the transistor to the laser, from digital communications to cellular telephony, it's hard to find an aspect of modern life that hasn't been touched by Bell Labs. In The Idea Factory, Jon Gertner traces the origins of some of the twentieth century's most important inventions and delivers a riveting and heretofore untold chapter of American history. At its heart this is a story about the life and work of a small group of brilliant and eccentric men-Mervin Kelly, Bill Shockley, Claude Shannon, John Pierce, and Bill Baker-who spent their careers at Bell Labs. Today, when the drive to invent has become a mantra, Bell Labs offers us a way to enrich our understanding of the challenges and solutions to technological innovation. Here, after all, was where the foundational ideas on the management of innovation were born.

Mass Flourishing

The Idea Factory

An Entrepreneur's Vision of the Future

The Age of Insight

Tesla, Elon Musk, and the Bet of the Century

Bell Laboratories in the Information Age

The Chip

*\* Our summary is short, simple and pragmatic. It allows you to have the essential ideas of a big book in less than 30 minutes. In this summary, you'll learn all about the origins of modern communications by delving into the history of Bell Laboratories. You'll understand how innovation comes about through the*

collaboration of ingenious and creative minds. You will also realize that : the success of a company depends above all on the vision of the people who make it up; intellectual curiosity and audacity are two virtues that bring creativity; technological innovations are based on collective and interdisciplinary work; bell laboratories have above all worked to reenchant science. Founded in 1925, Bell Laboratories was created to develop the R&D (research and development) of American Telephone & Telegraph (AT&T), which then held a monopoly in the telecommunications sector. The goal was to create a system capable of connecting two people wherever they were and whatever the time of day. Today, this is not only the case, but it is also possible to exchange images and different types of data. Tens of thousands of scientists have succeeded one another, over several decades, to bring this vision to life. The Idea Factory, traces the lives of some of them: Mervin Kelly, Jim Fisk, William Shockley, Claude Shannon, John R. Pierce. All are bound by the faith they put into the mission of Bell Laboratories. \*Buy now the summary of this book for the modest price of a cup of coffee!

Please note: This is a companion version & not the original book. Sample Book Insights: #1 Mervin Kelly, the boy who would become the author's grandfather, was a striver. He was both class president and valedictorian in high school, and people in Gallatin noticed that he was intent on being in charge. #2 In the early 1900s, when Kelly was going to school, few Americans recognized the differences between a scientist, an engineer, and an inventor. The public was far more impressed by new technology than the knowledge that created the technology. #3 Edison was a genius in making new inventions work, but he was not a genius in theory. He scorned talk about scientific theory, and he knew little about electricity. He relied on assistants trained in math and science to investigate the principles of his inventions. #4 The idea that scientists trained in subjects like physics could do interesting and important work was gaining legitimacy. Americans still knew very little about the sciences, but they were beginning to hear about a stream of revelations, all European in origin, regarding the hidden but fundamental structure of the visible world.

This classic history of America's high-stakes quest to dominate the skies is "a gripping technothriller in which the technology is real" (New York Times Book Review). From the development of the U-2 to the Stealth fighter, Skunk Works is the true story of America's most secret and successful aerospace operation. As recounted by Ben Rich, the operation's brilliant boss for nearly two decades, the chronicle of Lockheed's legendary Skunk Works is a drama of Cold War confrontations and Gulf War air combat, of extraordinary feats of engineering and human achievement against fantastic odds. Here are up-close portraits of the maverick band of scientists and engineers who made the Skunk Works so renowned. Filled with telling personal anecdotes and high adventure, with narratives from the CIA and from Air Force pilots who flew the many classified, risky missions, this book is a riveting portrait of the most spectacular aviation triumphs of the twentieth century. "Thoroughly engrossing." --Los Angeles Times

### Book Review

A riveting, urgent account of the explorers and scientists racing to understand the rapidly melting ice sheet in Greenland, a dramatic harbinger of climate change “Jon Gertner takes readers to spots few journalists or even explorers have visited. The result is a gripping and important book.”—Elizabeth Kolbert, Pulitzer Prize-winning author of *The Sixth Extinction NAMED ONE OF THE BEST BOOKS OF THE YEAR BY The Washington Post • The Christian Science Monitor • Library Journal* Greenland: a remote, mysterious island five times the size of California but with a population of just 56,000. The ice sheet that covers it is 700 miles wide and 1,500 miles long, and is composed of nearly three quadrillion tons of ice. For the last 150 years, explorers and scientists have sought to understand Greenland—at first hoping that it would serve as a gateway to the North Pole, and later coming to realize that it contained essential information about our climate. Locked within this vast and frozen white desert are some of the most profound secrets about our planet and its future. Greenland’s ice doesn’t just tell us where we’ve been. More urgently, it tells us where we’re headed. In *The Ice at the End of the World*, Jon Gertner explains how Greenland has evolved from one of earth’s last frontiers to its largest scientific laboratory. The history of Greenland’s ice begins with the explorers who arrived here at the turn of the twentieth century—first on foot, then on skis, then on crude, motorized sleds—and embarked on grueling expeditions that took as long as a year and often ended in frostbitten tragedy. Their original goal was simple: to conquer Greenland’s seemingly infinite interior. Yet their efforts eventually gave way to scientists who built lonely encampments out on the ice and began drilling—one mile, two miles down. Their aim was to pull up ice cores that could reveal the deepest mysteries of earth’s past, going back hundreds of thousands of years. Today, scientists from all over the world are deploying every technological tool available to uncover the secrets of this frozen island before it’s too late. As Greenland’s ice melts and runs off into the sea, it not only threatens to affect hundreds of millions of people who live in coastal areas. It will also have drastic effects on ocean currents, weather systems, economies, and migration patterns. Gertner chronicles the unfathomable hardships, amazing discoveries, and scientific achievements of the Arctic’s explorers and researchers with a transporting, deeply intelligent style—and a keen sense of what this work means for the rest of us. The melting ice sheet in Greenland is, in a way, an analog for time. It contains the past. It reflects the present. It can also tell us how much time we might have left.

*A History of Engineering and Science in the Bell System*

*How the Digital Magicians of the MIT Media Lab Are Creating the Innovative Technologies That Will Transform Our Lives*

*True Genius*

*Dealers of Lightning*

*The Sorcerers and Their Apprentices*

*Orwell's Revenge*

*The Origins Of The Internet*

*What is genius? Define it. Now think of scientists who embody the concept of genius. Does the name John Bardeen spring to mind? Indeed, have you ever heard of him? Like so much in modern life, immediate name recognition often rests on a cult of personality. We know Einstein, for example, not just for his tremendous contributions to science, but also because he was a character, who loved to mug for the camera. And our continuing fascination with Richard Feynman is not exclusively based on his body of work; it is in large measure tied to his flamboyant nature and offbeat sense of humor. These men, and their outsize personalities, have come to erroneously symbolize the true nature of genius and creativity. We picture them born brilliant, instantly larger than life. But is that an accurate picture of genius? What of others who are equal in stature to these icons of science, but whom history has awarded only a nod because they did not readily engage the public? Could a person qualify as a bona fide genius if he was a regular Joe? The answer may rest in the story of John Bardeen. John Bardeen was the first person to have been awarded two Nobel Prizes in the same field. He shared one with William Shockley and Walter Brattain for the invention of the transistor. But it was the charismatic Shockley who garnered all the attention, primarily for his Hollywood ways and notorious views on race and intelligence. Bardeen's second Nobel Prize was awarded for the development of a theory of superconductivity, a feat that had eluded the best efforts of leading theorists -- including Albert Einstein, Neils Bohr, Werner Heisenberg, and Richard Feynman. Arguably, Bardeen's work changed the world in more ways than that of any other scientific genius of his time. Yet while every school child knows of Einstein, few people have heard of John Bardeen. Why is this the case? Perhaps because Bardeen differs radically from the popular stereotype of genius. He was a modest, mumbling Midwesterner, an ordinary person who worked hard and had a knack for physics and mathematics. He liked to picnic with his family, collaborate quietly with colleagues, or play a round of golf. None of that was newsworthy, so the media, and consequently the public, ignored him. John Bardeen simply fits a new profile of genius. Through an exploration of his science as well as his life, a fresh and thoroughly engaging portrait of genius and the nature of creativity emerges. This perspective will have readers looking anew at what it truly means to be a genius. The instant New York Times bestseller! A Wall Street Journal Best Science Book of the Year! A Popular Science Best Science Book of the Year! From a top scientist and the creator of the hugely popular web comic Saturday Morning Breakfast Cereal, a hilariously illustrated investigation into future technologies -- from how to fling a ship into deep space on the cheap to 3D organ printing What will the world of tomorrow be like? How does progress happen? And why do we not have a lunar colony already? What is the hold-up? In this smart and funny book, celebrated cartoonist Zach Weinersmith and noted researcher Dr. Kelly Weinersmith give us a snapshot of what's coming next -- from robot swarms to nuclear fusion powered-toasters. By weaving their own research, interviews with the scientists who are making these advances happen, and Zach's trademark comics, the Weinersmiths investigate why these technologies are needed, how they would work, and what is standing in their way. New technologies are almost never the work of isolated geniuses with a neat idea. A given future technology may need any number of intermediate technologies to develop first, and many of these critical advances may appear to be irrelevant when they are first discovered. The journey to progress is full of strange detours and blind alleys that tell us so much about the human mind and the march of civilization. To this end, Soonish investigates ten different emerging fields, from programmable matter to augmented reality, from space elevators to robotic construction, to show us the amazing world we will have, you*

*know, soonish. Soonish is the perfect gift for science lovers for the holidays!*

*A WALL STREET JOURNAL BUSINESS BESTSELLER • The riveting inside story of Elon Musk and Tesla's bid to build the world's greatest car—from award-winning Wall Street Journal tech and auto reporter Tim Higgins. “A deeply reported and business-savvy chronicle of Tesla's wild ride.” —Walter Isaacson, New York Times Book Review Tesla is the envy of the automotive world. Born at the start of the millennium, it was the first car company to be valued at \$1 trillion. Its CEO, the mercurial, charismatic Elon Musk has become not just a celebrity but the richest man in the world. But Tesla’s success was far from guaranteed. Founded in the 2000s, the company was built on an audacious vision. Musk and a small band of Silicon Valley engineers set out to make a car that was quicker, sexier, smoother, and cleaner than any gas-guzzler on the road. Tesla would undergo a hellish fifteen years, beset by rivals—pressured by investors, hobbled by whistleblowers. Musk often found himself in the public’s crosshairs, threatening to bring down the company he had helped build. Wall Street Journal tech and auto reporter Tim Higgins had a front-row seat for the drama: the pileups, breakdowns, and the unlikeliest outcome of all, success. A story of impossible wagers and unlikely triumphs, Power Play is an exhilarating look at how a team of innovators beat the odds—and changed the future.*

*For more than a century, the American Telephone & Telegraph Co. was a towering fixture in the American business landscape. At the forefront of the global communications revolution, AT&T led the way in the development of the telephone, wireless communication, and the Internet. But at the end of the twentieth century, with one man floundering at the helm, the corporate giant collapsed. It was the end of an era. Veteran telecom journalist Leslie Cauley pursued the story for over a decade and witnessed the entire debacle. At The Wall Street Journal and at USA Today, she has earned a reputation for aggressive investigation of the numerous industry shake-ups -- none more dramatic than AT&T's headlong plunge as it misguidedly attempted to become a broadband leader. Cauley gained access to current and former AT&T executives, boardmembers, and other insiders. Filled with new and controversial material and peopled by a cast of characters worthy of a Shakespearean drama, this is the first book to chronicle this riveting tale. Up through the late 1990s, AT&T -- tough, innovative, resourceful -- seemed infallible. For industry insiders and for the general public, it loomed as an emblem of American business prowess and, even more, of the American Dream fulfilled. End of the Line is an unprecedented account of the ruin of an icon and one of the shattering corporate events of our time.*

*A History of Engineering and Science in the Bell System: National service in war and peace (1925-1975)*

*Summary of Jon Gertner's The Idea Factory*

*History, Theory and Design*

*The Third Wave*

*The Origins of the Digital Universe*

*Leadership Agility*

*Bell Labs and the Great Age of American Innovation*

**Leadership Agility is the master competency needed for sustained success in today’s complex, fast-paced business environment. Richly illustrated with stories based on original research and decades of work with clients, this groundbreaking book identifies five levels that leaders move through in**

**developing their agility. Significantly, only 10% have mastered the level of agility needed for consistent effectiveness in our turbulent era of global competition. Written in an engaging, down-to-earth style, this book not only provides a map that guides readers in identifying their current level of agility. It also provides practical advice and concrete examples that show managers and leadership development professionals how they can bring greater agility to the initiatives they take every day. Focuses on the human factors behind the invention of the transistor, highlighting the pride and scientific ambitions of the team who spawned the epoch-making technology**

**The Business Idea Factory is an effective and easy-to-use system for creating successful business ideas. It is based on 10 years of research into idea-generation techniques used by the world's best scientists, artists, CEOs, entrepreneurs and innovators. The book is entertaining to read, has plenty of stories and offers bits of wisdom necessary to increase the quantity and quality of ideas that you create multiple times. Once you begin applying strategies described in this book, you will create successful business ideas regularly and make your life more adventurous. You will realize that there are few things that can bring as much joy and success in business as the moment when an excellent idea comes to your head.**

**Bell Laboratories is one of the world's leading research centres. Bell scientists have won seven Nobel prizes in, physics, more than any other single institution in the world. In this engrossing book - a blend of popular science, and history -Jeremy Bernstein guides us on a fascinating tour of the labs, introducing us to the men and women who have been responsible for some of the greatest scientific advances of this century, in computers and computation, solid state physics (including the invention and development of the transistor); communications, and in astrophysics.**

**The Quest to Understand the Unconscious in Art, Mind, and Brain, from Vienna 1900 to the Present**

**High Quality Horn Loudspeaker Systems**

**A Search for the World's Most Creative Places from Ancient Athens to Silicon Valley**

**How Claude Shannon Invented the Information Age**

**Five Levels of Mastery for Anticipating and Initiating Change**

**Fundamentals of Astrodynamics**

**How We Got to Now**

***In this book, Nobel Prize-winning economist Edmund Phelps draws on a lifetime of thinking to make a sweeping new argument about what makes nations prosper--and why the sources of that prosperity are under threat today. Why did prosperity explode in some nations between the 1820s and 1960s, creating not just***

*unprecedented material wealth but "flourishing"--meaningful work, self-expression, and personal growth for more people than ever before? Phelps makes the case that the wellspring of this flourishing was modern values such as the desire to create, explore, and meet challenges. These values fueled the grassroots dynamism that was necessary for widespread, indigenous innovation. Most innovation wasn't driven by a few isolated visionaries like Henry Ford and Steve Jobs; rather, it was driven by millions of people empowered to think of, develop, and market innumerable new products and processes, and improvements to existing ones. Mass flourishing--a combination of material well-being and the "good life" in a broader sense--was created by this mass innovation. Yet indigenous innovation and flourishing weakened decades ago. In America, evidence indicates that innovation and job satisfaction have decreased since the late 1960s, while postwar Europe has never recaptured its former dynamism. The reason, Phelps argues, is that the modern values underlying the modern economy are under threat by a resurgence of traditional, corporatist values that put the community and state over the individual. The ultimate fate of modern values is now the most pressing question for the West: will Western nations recommit themselves to modernity, grassroots dynamism, indigenous innovation, and widespread personal fulfillment, or will we go on with a narrowed innovation that limits flourishing to a few? A book of immense practical and intellectual importance, Mass Flourishing is essential reading for anyone who cares about the sources of prosperity and the future of the West.*

*Barely fifty years ago a computer was a gargantuan, vastly expensive thing that only a handful of scientists had ever seen. The world's brightest engineers were stymied in their quest to make these machines small and affordable until the solution finally came from two ingenious young Americans. Jack Kilby and Robert Noyce hit upon the stunning discovery that would make possible the silicon microchip, a work that would ultimately earn Kilby the Nobel Prize for physics in 2000. In this completely revised and updated edition of The Chip, T.R. Reid tells the gripping adventure story of their invention and of its growth into a global information industry. This is the story of how the digital age began.*

*In the bestselling tradition of The Soul of a New Machine, Dealers of Lightning is a fascinating journey of intellectual creation. In the 1970s and '80s, Xerox Corporation brought together a brain-trust of engineering geniuses, a group of computer eccentrics dubbed PARC. This brilliant group created several monumental innovations that triggered a technological revolution, including the first personal computer, the laser printer, and the graphical interface (one of the main precursors of the Internet), only to see these breakthroughs rejected by the corporation. Yet, instead of giving up, these determined inventors turned their ideas into empires that*

*radically altered contemporary life and changed the world. Based on extensive interviews with the scientists, engineers, administrators, and executives who lived the story, this riveting chronicle details PARC's humble beginnings through its triumph as a hothouse for ideas, and shows why Xerox was never able to grasp, and ultimately exploit, the cutting-edge innovations PARC delivered. Dealers of Lightning offers an unprecedented look at the ideas, the inventions, and the individuals that propelled Xerox PARC to the frontier of technohistory--and the corporate machinations that almost prevented it from achieving greatness.*

*A brilliant book by Nobel Prize winner Eric R. Kandel, The Age of Insight takes us to Vienna 1900, where leaders in science, medicine, and art began a revolution that changed forever how we think about the human mind—our conscious and unconscious thoughts and emotions—and how mind and brain relate to art. At the turn of the century, Vienna was the cultural capital of Europe. Artists and scientists met in glittering salons, where they freely exchanged ideas that led to revolutionary breakthroughs in psychology, brain science, literature, and art. Kandel takes us into the world of Vienna to trace, in rich and rewarding detail, the ideas and advances made then, and their enduring influence today. The Vienna School of Medicine led the way with its realization that truth lies hidden beneath the surface. That principle infused Viennese culture and strongly influenced the other pioneers of Vienna 1900. Sigmund Freud shocked the world with his insights into how our everyday unconscious aggressive and erotic desires are repressed and disguised in symbols, dreams, and behavior. Arthur Schnitzler revealed women's unconscious sexuality in his novels through his innovative use of the interior monologue. Gustav Klimt, Oscar Kokoschka, and Egon Schiele created startlingly evocative and honest portraits that expressed unconscious lust, desire, anxiety, and the fear of death. Kandel tells the story of how these pioneers—Freud, Schnitzler, Klimt, Kokoschka, and Schiele—inspired by the Vienna School of Medicine, in turn influenced the founders of the Vienna School of Art History to ask pivotal questions such as What does the viewer bring to a work of art? How does the beholder respond to it? These questions prompted new and ongoing discoveries in psychology and brain biology, leading to revelations about how we see and perceive, how we think and feel, and how we respond to and create works of art. Kandel, one of the leading scientific thinkers of our time, places these five innovators in the context of today's cutting-edge science and gives us a new understanding of the modernist art of Klimt, Kokoschka, and Schiele, as well as the school of thought of Freud and Schnitzler. Reinvigorating the intellectual enquiry that began in Vienna 1900, The Age of Insight is a wonderfully written, superbly researched, and beautifully illustrated book that also provides a foundation for future work in neuroscience and the humanities. It is an extraordinary book from an international leader in*

***neuroscience and intellectual history.***

***Unix***

***Ten Emerging Technologies That'll Improve and/or Ruin Everything***

***The Fifth Wave***

***Skunk Works***

***The 1984 Palimpsest***

***Xerox PARC and the Dawn of the Computer Age***

***A Mind at Play***

Drawing from a variety of disciplines, including design, economics, public policy, organizational theory, science and technology studies, sociology, and even cognitive psychology and epistemology, *The Fifth Wave* is a must-read for anyone concerned with the future of higher education in our society.

Tag along on this New York Times bestselling "witty, entertaining romp" (The New York Times Book Review) as Eric Weiner travels the world, from Athens to Silicon Valley—and back through history, too—to show how creative genius flourishes in specific places at specific times. In this "intellectual odyssey, traveler's diary, and comic novel all rolled into one" (Daniel Gilbert, author of *Stumbling on Happiness*), acclaimed travel writer Weiner sets out to examine the connection between our surroundings and our most innovative ideas. A "superb travel guide: funny, knowledgeable, and self-deprecating" (The Washington Post), he explores the history of places like Vienna of 1900, Renaissance Florence, ancient Athens, Song Dynasty Hangzhou, and Silicon Valley to show how certain urban settings are conducive to ingenuity. With his trademark insightful humor, this "big-hearted humanist" (The Wall Street Journal) walks the same paths as the geniuses who flourished in these settings to see if the spirit of what inspired figures like Socrates, Michelangelo, and Leonardo remains. In these places, Weiner asks, "What was in the air, and can we bottle it?" "Fun and thought provoking" (Miami Herald), *The Geography of Genius* reevaluates the importance of culture in nurturing creativity and "offers a practical map for how we can all become a bit more inventive" (Adam Grant, author of *Originals*).

Highlights achievements of Bell Labs as a leading innovator, exploring the role of its highly educated employees in developing new technologies while considering the qualities of companies where innovation and development are most successful.

Presents the history of the invention of computers, describing the collaboration of John von Neumann and his colleagues as they worked together to create the first computer, an event which led to the hydrogen bomb and the birth of the digital age.

## The Dream Machine

### V.1 The Early Years (1875-1925)

#### Three Degrees Above Zero

#### How Two Americans Invented the Microchip and Launched a Revolution

#### Soonish

#### End of the Line

#### Abandoned America

Using Nobel Prize-winning examples like the transistor, laser, and magnetic resonance imaging, Venky Narayanamurti and Tolu Odumosu explore the daily micro-practices of research and show that distinctions between the search for knowledge and creative problem solving break down when one pays attention to how pathbreaking research actually happens.

In alternating chapters of fiction and nonfiction, Huber turns the computer against Orwell's words, reimagining Orwell's 1984 from the computer's point of view, interpolating Huger's own explanations and arguments.

Twenty five years ago, it didn't exist. Today, twenty million people worldwide are surfing the Net. Where Wizards Stay Up Late is the story of the pioneers responsible for creating the most talked about, most influential, and most far-reaching communications breakthrough since the invention of the telephone. In the 1960's, when computers were regarded as mere giant calculators, J.C.R. Licklider at MIT saw them as the ultimate communications devices. With Defense Department funds, he and a band of visionary computer whizzes began work on a nationwide, interlocking network of computers. Taking readers behind the scenes, Where Wizards Stay Up Late captures the hard work, genius, and happy accidents of their daring, stunningly successful venture.

Throughout the ages, mankind has been fascinated by the ruins of previous societies. The desire to gain a greater understanding of our past has driven archaeologists, artists, and scholars from across the world to study the vestiges of lifestyles that have vanished in an attempt to capture their mystique and beauty. Originally intended as an examination of the rise and fall of the state hospital system, Matthew Christopher's Abandoned America rapidly grew to encompass derelict factories and industrial sites, schools, churches, power plants, hospitals, prisons, military installations, hotels, resorts, homes, and more. Through his collection of writing and photography, Christopher spent the last decade documenting the ruins of one of the greatest civilizations the world has ever known: our own. Exploring sites like the charred remains of the Hotel Do De, the rusted cells of the Essex County Jail Annex, the sublime majesty of the Church of the Transfiguration, or the eerie and dilapidated remnants of the New Castle Elks Lodge, the work spans architectural treasures left to the elements and then all too often lost forever."

#### Crystal Fire

#### The Soul of A New Machine

#### The Geography of Genius

#### The Business Idea Factory

#### Where Wizards Stay Up Late

## Power Play

### A History and a Memoir

*From the New York Times—bestselling author of *Where Good Ideas Come From* and *Extra Life*, a new look at the power and legacy of great ideas. In this illustrated history, Steven Johnson explores the history of innovation over centuries, tracing facets of modern life (refrigeration, clocks, and eyeglass lenses, to name a few) from their creation by hobbyists, amateurs, and entrepreneurs to their unintended historical consequences. Filled with surprising stories of accidental genius and brilliant mistakes—from the French publisher who invented the phonograph before Edison but forgot to include playback, to the Hollywood movie star who helped invent the technology behind Wi-Fi and Bluetooth—*How We Got to Now* investigates the secret history behind the everyday objects of contemporary life. In his trademark style, Johnson examines unexpected connections between seemingly unrelated fields: how the invention of air-conditioning enabled the largest migration of human beings in the history of the species—to cities such as Dubai or Phoenix, which would otherwise be virtually uninhabitable; how pendulum clocks helped trigger the industrial revolution; and how clean water made it possible to manufacture computer chips. Accompanied by a major six-part television series on PBS, *How We Got to Now* is the story of collaborative networks building the modern world, written in the provocative, informative, and engaging style that has earned Johnson fans around the globe.*

*The third book to be released as part of the *Writers in Residence* series is written by Canadian cultural literary giant Douglas Coupland. Coupland takes readers on a web surfing-inspired ride through Alcatel-Lucent: one of the largest global telecommunications companies in the world. Coupland, with Magnum photographer Olivia Arthur, reports from inside Alcatel's faceless corporate offices and wire-laden science labs, writing in his inimitably playful and insightful way about the wider cultural implications of the Internet and the affect Alcatel's information technology has on each of our lives and the way we live. A non-fiction spin of *Microserfs* meets *J-Pod*, here comes Coupland's wildly funny meditation on the Internet, its future and our possible future within it, in ways we would only hope for and expect from Douglas Coupland.*

*Pulitzer Prize winner Tracy Kidder memorably records the drama, comedy, and excitement of one company's efforts to bring a new microcomputer to market. Computers have changed since 1981, when *The Soul of a New Machine* first examined the culture of the computer revolution. What has not changed is the feverish pace of the high-tech industry, the go-for-broke approach to business that has caused so many computer companies to win big (or go belly up), and the cult of pursuing mind-bending technological innovations. *The Soul of a New Machine* is an essential chapter in the history of the machine that revolutionized the world in the twentieth century.*

*The #1 New York Times and Wall Street Journal bestseller from Steve Case—the co-founder of AOL—presents “a compelling roadmap for the future...that can help us make sense of the technological changes reshaping our economy and the world. A fascinating read” (Sheryl Sandberg, Facebook COO and founder of LeanIn.org). Steve Case—a pioneer who made the Internet part of everyday life—was on the leading edge of a revolution in 1985 when he co-founded AOL, the first Internet company to go public*

*and the most successful business of the 1990s. Back then Case was an entrepreneur in an industry that hadn't really been invented yet, but he had a sense how dramatically the Internet would transform business and society. In *The Third Wave*, he uses his insights garnered from nearly four decades of working as an innovator, investor, and businessman to argue the importance of entrepreneurship and to chart a path for future innovators. We are entering, as Case explains, the "Third Wave" of the Internet. The first wave saw AOL and other companies lay the foundation for consumers to connect to the Internet. The second wave saw companies like Google and Facebook build on top of the Internet to create search and social networking capabilities, while apps like Snapchat and Instagram leveraged the smartphone revolution. Now, Case argues, we're entering the Third Wave: a period in which entrepreneurs will vastly transform major "real world" sectors such as health, education, transportation, energy, and food—and in the process change the way we live our daily lives. Part memoir, part manifesto, and part playbook for the future, *The Third Wave* explains the ways in which newly emerging technology companies will have to rethink their relationships with customers, with competitors, and with governments; and offers advice for how entrepreneurs can make winning business decisions and strategies—and how all of us can make sense of this ever-changing digital age.*

*Turing's Cathedral*

*Kitten Clone*

*How Grassroots Innovation Created Jobs, Challenge, and Change*

*The Evolution of American Higher Education*

*An Epic Journey into Greenland's Buried Past and Our Perilous Future*

*In the Plex*

*The Ice at the End of the World*

*"The most interesting book ever written about Google" (The Washington Post) delivers the inside story behind the most successful and admired technology company of our time, now updated with a new Afterword. Google is arguably the most important company in the world today, with such pervasive influence that its name is a verb. The company founded by two Stanford graduate students—Larry Page and Sergey Brin—has become a tech giant known the world over. Since starting with its search engine, Google has moved into mobile phones, computer operating systems, power utilities, self-driving cars, all while remaining the most powerful company in the advertising business. Granted unprecedented access to the company, Levy disclosed that the key to Google's success in all these businesses lay in its engineering mindset and adoption of certain internet values such as speed, openness, experimentation, and risk-taking. Levy discloses details behind Google's relationship with China, including how Brin disagreed with his colleagues on the China strategy—and why its social networking initiative failed; the*

*first time Google tried chasing a successful competitor. He examines Google's rocky relationship with government regulators, particularly in the EU, and how it has responded when employees left the company for smaller, nimbler start-ups. In the Plex is the "most authoritative...and in many ways the most entertaining" (James Gleick, The New York Book Review) account of Google to date and offers "an instructive primer on how the minds behind the world's most influential internet company function" (Richard Waters, The Wall Street Journal).*

*Ask consumers and users what names they associate with the multibillion dollar personal computer market, and they will answer IBM, Apple, Tandy, or Lotus. The more knowledgeable of them will add the likes of Microsoft, Ashton-Tate, Compaq, and Borland. But no one will say Xerox. Fifteen years after it invented personal computing, Xerox still means "copy." Fumbling the Future tells how one of America's leading corporations invented the technology for one of the fastest-growing products of recent times, then miscalculated and mishandled the opportunity to fully exploit it. It is a classic story of how innovation can fare within large corporate structures, the real-life odyssey of what can happen to an idea as it travels from inspiration to implementation. More than anything, Fumbling the Future is a tale of human beings whose talents, hopes, fears, habits, and prejudices determine the fate of our largest organizations and of our best ideas. In an era in which technological creativity and economic change are so critical to the competitiveness of the American economy, Fumbling the Future is a parable for our times.*

*Winner of the Neumann Prize for the History of Mathematics "We owe Claude Shannon a lot, and Soni & Goodman's book takes a big first step in paying that debt." —San Francisco Review of Books "Soni and Goodman are at their best when they invoke the wonder an idea can instill. They summon the right level of awe while stopping short of hyperbole." —Financial Times "Jimmy Soni and Rob Goodman make a convincing case for their subtitle while reminding us that Shannon never made this claim himself." —The Wall Street Journal "A charming account of one of the twentieth century's most distinguished scientists...Readers will enjoy this portrait of a modern-day Da Vinci." —Fortune In their second collaboration, biographers Jimmy Soni and Rob Goodman present the story of Claude Shannon—one of the foremost intellects of the twentieth century and the architect of the Information Age, whose insights stand behind every computer built, email sent, video streamed, and webpage loaded. Claude Shannon was a groundbreaking polymath, a brilliant tinkerer, and a digital pioneer. He constructed the first wearable computer, outfoxed Vegas casinos, and built juggling robots. He also wrote the seminal text of the digital*

*revolution, which has been called "the Magna Carta of the Information Age." In this elegantly written, exhaustively researched biography, Soni and Goodman reveal Claude Shannon's full story for the first time. With unique access to Shannon's family and friends, A Mind at Play brings this singular innovator and always playful genius to life.*

*At a time when computers were a short step removed from mechanical data processors, Licklider was writing treatises on "human-computer symbiosis," "computers as communication devices," and a now not-so-unfamiliar "Intergalactic Network." His ideas became so influential, his passion so contagious, that Waldrop coined him "computing's Johnny Appleseed." In a simultaneously compelling personal narrative and comprehensive historical exposition, Waldrop tells the story of the man who not only instigated the work that led to the internet, but also shifted our understanding of what computers were and could be.*

*A World-Class System for Creating Successful Business Ideas*

*The Invention of the Transistor and the Birth of the Information Age*

*The Age of Consequences*

*A Personal Memoir of My Years of Lockheed*

*Inside Alcatel-Lucent*

*How Xerox Invented, then Ignored, the First Personal Computer*

*How Google Thinks, Works, and Shapes Our Lives*