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John von Neumann: The Scientific Genius Who Pioneered the Modern Computer, Game Theory, Nuclear Deterrence, and Much More

The Once and Future World

Contrary to what many believe, Alan Turing is not the father of the all-purpose computer. Engineers were, independently of Turing, already building such machines during World War II. Turing's influence was felt more in programming after his death than in computer building during his lifetime. The first person to receive a Turing award was a programmer, not a computer builder. Logicians and programmers recast Turing's notions of machine and universality. Gradually, these recast notions helped

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programmers to see the bigger picture of what they were accomplishing. Later, problems unsolvable with a computer influenced experienced programmers, including Edsger W. Dijkstra. Dijkstra's pioneering work shows that both unsolvability and aesthetics have practical relevance in software engineering. But to what extent did Dijkstra and others depend on Turing's accomplishments? This book presents a revealing synthesis for the modern software engineer and, by doing so, deromanticizes Turing's role in the history of computing.

John Von Neumann and Norbert Wiener

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.

The Universal Computer

"Explores the architectural and cultural history of Princeton University from 1750 to the present. Includes 150 historical illustrations"--Provided by publisher.

Project Orion

Open source provides the competitive advantage in the Internet Age. According to the August Forrester

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Report, 56 percent of IT managers interviewed at Global 2,500 companies are already using some type of open source software in their infrastructure and another 6 percent will install it in the next two years. This revolutionary model for collaborative software development is being embraced and studied by many of the biggest players in the high-tech industry, from Sun Microsystems to IBM to Intel. The Cathedral & the Bazaar is a must for anyone who cares about the future of the computer industry or the dynamics of the information economy. Already, billions of dollars have been made and lost based on the ideas in this book. Its conclusions will be studied, debated, and implemented for years to come. According to Bob Young, "This is Eric Raymond's great contribution to the success of the open source revolution, to the adoption of Linux-based operating systems, and to the success of open source users and the companies that supply them." The interest in open source software development has grown enormously in the past year. This revised and expanded paperback edition includes new material on open source developments in 1999 and 2000. Raymond's clear and effective writing style accurately describing the benefits of open source software has been key to its success. With major vendors creating acceptance for open source within companies, independent vendors will become the open source story in 2001.

The Computing Universe

In Analogia, technology historian George Dyson presents a startling look back at the analog age and life before the digital revolution—and an unsettling vision of what comes next. In 1716, the philosopher and mathematician Gottfried Wilhelm Leibniz spent eight days taking the cure with Peter the Great at Bad Pyrmont in Saxony, seeking to initiate a digitally-computed takeover of the world. In his classic books,

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Darwin Among the Machines and Turing's Cathedral, Dyson chronicled the realization of Leibniz's dream at the hands of a series of iconoclasts who brought his ideas to life. Now, in his pathbreaking new book, Analogia, he offers a chronicle of people who fought for the other side—the Native American leader Geronimo and physicist Leo Szilard, among them—a series of stories that will change our view not only of the past but also of the future. The convergence of a startling historical archaeology with Dyson's unusual personal story—set alternately in the rarified world of cutting-edge physics and computer science, in Princeton, and in the rainforest of the Northwest Coast—leads to a prophetic vision of an analog revolution already under way. We are, Dyson reveals, on the cusp of a new moment in human history, driven by a generation of machines whose powers are beyond programmable control. Includes black-and-white illustrations

The Age of Insight

“The Starship and the Canoe is neither a wilderness survival manual nor a book of blueprints. It is another of those rare books impossible to define: the kind that seeks you in time. And you will know it, live it, and consult it thereafter simply by name.” --Chicago Sun-Times “Brower's superbly written book clutches at one's imagination.” --Publishers Weekly “In the tradition of Carl Sagan and John McPhee, a bracing cerebral voyage past intergalactic hoopla and backwoods retreats.” --Kirkus Reviews Originally published in 1978, The Starship and the Canoe is the remarkable story of a father and son: Freeman Dyson is a world-renowned astrophysicist who dreams of exploring the heavens and has designed a spaceship to take him there. His son George, a brilliant high school dropout, lives in a treehouse and is designing a giant kayak to explore the icy coastal wilderness of the Pacific Northwest

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and Alaska. Author Kenneth Brower describes with stunning impact their lives and their visions of the world. It is a timeless tale framed by modern science, adventure, family, and the natural world.

Shakespeare LP

William Shakespeare, the most celebrated poet in the English language, left behind nearly a million words of text, but his biography has long been a thicket of wild supposition arranged around scant facts. With a steady hand and his trademark wit, Bill Bryson sorts through this colorful muddle to reveal the man himself. Bryson documents the efforts of earlier scholars, from today's most respected academics to eccentrics like Delia Bacon, an American who developed a firm but unsubstantiated conviction that her namesake, Francis Bacon, was the true author of Shakespeare's plays. Emulating the style of his famous travelogues, Bryson records episodes in his research, including a visit to a basement room in Washington, D.C., where the world's largest collection of First Folios is housed. Bryson celebrates Shakespeare as a writer of unimaginable talent and enormous inventiveness. His Shakespeare is like no one else's—the beneficiary of Bryson's genial nature, his engaging skepticism, and a gift for storytelling unrivalled in our time.

Euclid's Window

Computers now impact almost every aspect of our lives, from our social interactions to the safety and performance of our cars. How did this happen in such a short time? And this is just the beginning. In this

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book, Tony Hey and Gyuri Pápay lead us on a journey from the early days of computers in the 1930s to the cutting-edge research of the present day that will shape computing in the coming decades. Along the way, they explain the ideas behind hardware, software, algorithms, Moore's Law, the birth of the personal computer, the Internet and the Web, the Turing Test, Jeopardy's Watson, World of Warcraft, spyware, Google, Facebook and quantum computing. This book also introduces the fascinating cast of dreamers and inventors who brought these great technological developments into every corner of the modern world. This exciting and accessible introduction will open up the universe of computing to anyone who has ever wondered where his or her smartphone came from.

Dcmm

This book gives the most comprehensive, in depth and contemporary assessment of this classic topic in artificial intelligence. It is the first to elaborate in such detail the numerous conflicting points of view on many aspects of this multifaceted, controversial subject. It offers new insights into Turing's own interpretation and is essential reading for research on the Turing test and for teaching undergraduate and graduate students in philosophy, computer science, and cognitive science.

Turing's Cathedral

Documents the innovations of a group of eccentric geniuses who developed computer code in the mid-20th century as part of mathematician Alan Turin's theoretical universal machine idea, exploring

how their ideas led to such developments as digital television, modern genetics and the hydrogen bomb.

Alan Turing: The Enigma

A Nobel Prize-winning neuroscientist and author of *In Search of Memory* documents the work of five leading minds including Sigmund Freud and Gustave Klimt in 1900 Vienna, revealing how their critical breakthroughs in science, medicine and art laid the groundwork for present-day discoveries in brain science.

Darwin Among the Machines

The process of globalization has brought about countless changes in societies, communities, regions and economies across the globe. It has been analyzed from many perspectives as a result and much has been written to muddy the waters of our understanding of this important concept. In going back to the real origins of the global economy, this book demonstrates that understanding this phenomenon as a 'battle against time' will bring a new clarity to the subject. The process of globalization was accompanied by the mastering of 'social time', thereby producing a progressive increase in the speed of business transactions, both in manufacturing and in services. The context is the development of international trade in western societies and the creation of business institutions to drive forward growth. The account takes a 'long view', beginning with early European exploration in the B.C. period, and ending with the establishment of multinational enterprises in the 20th century. Using an impressive range of sources this

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unique book will be valuable reading for students and academics involved with the study of international business, economic history, business history and politics, among other disciplines.

Analogia

Alan Turing is regarded as one of the greatest scientists of the 20th century. But who was Turing, and what did he achieve during his tragically short life of 41 years? Best known as the genius who broke Germany's most secret codes during the war of 1939-45, Turing was also the father of the modern computer. Today, all who 'click-to-open' are familiar with the impact of Turing's ideas. Here, B. Jack Copeland provides an account of Turing's life and work, exploring the key elements of his life-story in tandem with his leading ideas and contributions. The book highlights Turing's contributions to computing and to computer science, including Artificial Intelligence and Artificial Life, and the emphasis throughout is on the relevance of his work to modern developments. The story of his contributions to codebreaking during the Second World War is set in the context of his thinking about machines, as is the account of his work in the foundations of mathematics.

The Turing Test

Does Silicon Valley deserve all the credit for digital creativity and social media? Joy Rankin questions this triumphalism by revisiting a pre-PC time when schools were not the last stop for mature consumer technologies but flourishing sites of innovative collaboration—when users taught computers and

visionaries dreamed of networked access for all.

The Weather of the Pacific Northwest

John von Neumann was a Jewish refugee from Hungary — considered a “genius” like fellow Hungarians Leo Szilard, Eugene Wigner and Edward Teller — who played key roles developing the A-bomb at Los Alamos during World War II. As a mathematician at Princeton’s Institute for Advanced Study (where Einstein was also a professor), von Neumann was a leader in the development of early computers. Later, he developed the new field of game theory in economics and became a top nuclear arms policy adviser to the Truman and Eisenhower administrations. “I always thought [von Neumann’s] brain indicated that he belonged to a new species, an evolution beyond man. Macrae shows us in a lively way how this brain was nurtured and then left its great imprint on the world.” — Hans A. Bethe, Cornell University “The book makes for utterly captivating reading. Von Neumann was, of course, one of this century’s geniuses, and it is surprising that we have had to wait so long for a fully fleshed and sympathetic biography of the man. But now, happily, we have one. Macrae nicely delineates the cultural, familial, and educational environment from which von Neumann sprang and sketches the mathematical and scientific environment in which he flourished. It’s no small task to render a genius like von Neumann in ordinary language, yet Macrae manages the trick, providing more than a glimpse of what von Neumann accomplished intellectually without expecting the reader to have a Ph.D. in mathematics. Beyond that, he captures von Neumann’s qualities of temperament, mind, and personality, including his effortless wit and humor. And [Macrae] frames and accounts for von Neumann’s politics in ways that even critics of them, among whom I include myself, will find provocative and illuminating.” — Daniel J. Kevles,

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California Institute of Technology “A lively portrait of the hugely consequential nonmathematician-physicist-et al., whose genius has left an enduring impress on our thought, technology, society, and culture. A double salute to Steve White, who started this grand book designed for us avid, nonmathematical readers, and to Norman Macrae, who brought it to a triumphant conclusion.” — Robert K. Merton, Columbia University “The first full-scale biography of this polymath, who was born Jewish in Hungary in 1903 and died Roman Catholic in the United States at the age of 53. And Mr. Macrae has some great stories to tell Mr. Macrae’s biography has rescued a lot of good science gossip from probable extinction, and has introduced many of us to the life story of a man we ought to know better.” — Ed Regis, The New York Times “A nice and fascinating picture of a genius who was active in so many domains.” —Zentralblatt MATH “Biographer Macrae takes a ‘viewspaperman’ approach which stresses the context and personalities associated with von Neumann’s remarkable life, rather than attempting to give a detailed scholarly analysis of von Neumann’s papers. The resulting book is a highly entertaining account that is difficult to put down.” — Journal of Mathematical Psychology “A full and intimate biography of ‘the man who consciously and deliberately set mankind moving along the road that led us into the Age of Computers.’” — Freeman Dyson, Princeton, NJ “It is good to have a biography of one of the most important mathematicians of the twentieth century, even if it is a biography that focuses much more on the man than on the mathematics.” — Fernando Q. Gouvêa, Mathematical Association of America “Based on much research, his own and that of others (especially of Stephen White), Macrae has written a valuable biography of this remarkable genius of our century, without the opacity of technical (mathematical) dimensions that are part of the hero’s intellectual contributions to humanity. Interesting, informative, illuminating, and insightful.” — Choice Review “Macrae paints a highly readable, humanizing portrait of a man whose legacy still influences and shapes modern science and knowledge.”

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— Resonance, Journal of Science Education “In this affectionate, humanizing biography, former Economist editor Macrae limns a prescient pragmatist who actively fought against fascism and who advocated a policy of nuclear deterrence because he foresaw that Stalin’s Soviet Union would rapidly acquire the bomb and develop rocketry Macrae makes [von Neumann’s] contributions accessible to the lay reader, and also discusses von Neumann’s relationships with two long-suffering wives, his political differences with Einstein and the cancer that killed him.” — Publishers Weekly “Macrae’s life of the great mathematician shows dramatically what proper care and feeding can do for an unusually capacious mind.” — John Wilkes, Los Angeles Times

The Great Computer

Cybernetic Revolutionaries

The Colonisation of Time is a highly original and long overdue examination of the ways that western-European and specifically British concepts and rituals of time were imposed on other cultures as a fundamental component of colonisation during the nineteenth century. Based on a wealth of primary sources, it explores the intimate relationship between the colonisation of time and space in two British settler-colonies (Victoria, Australia and the Cape Colony, South Africa) and its instrumental role in the exportation of Christianity, capitalism, and modernity, thus adding new depth to our understanding of imperial power and of the ways in which it was exercised and limited. All those intrigued by the concept

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of time will find this book of interest, for it illustrates how western-European time's rise to a position of global dominance—from the clock to the seven-day week—is one of the most pervasive, enduring and taken-for-granted legacies of colonisation in today's world.

The Annotated Turing

Explains the multimodal connections of text, image, space, body, sound and speech, in both old and new computer-mediated communication systems.

Making Sense

The breathtakingly rapid pace of change in computing makes it easy to overlook the pioneers who began it all. *The Universal Computer: The Road from Leibniz to Turing* explores the fascinating lives, ideas, and discoveries of seven remarkable mathematicians. It tells the stories of the unsung heroes of the computer age – the logicians.

Princeton

While the physical sciences are a continuously evolving source of technology and of understanding about our world, they have become so specialized and rely on so much prerequisite knowledge that for many people today the divide between the sciences and the humanities seems even greater than it was

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when C. P. Snow delivered his famous 1959 lecture, "The Two Cultures." In *A Cultural History of Physics*, Hungarian scientist and educator Károly Simonyi succeeds in bridging this chasm by describing the experimental methods and theoretical interpretations that created scientific knowledge, from ancient times to the present day, within the cultural environment in which it was formed. Unlike any other work of its kind, Simonyi's seminal opus explores the interplay of science and the humanities to convey the wonder and excitement of scientific development throughout the ages. These pages contain an abundance of excerpts from original resources, a wide array of clear and straightforward explanations, and an astonishing wealth of insight, revealing the historical progress of science and inviting readers into a dialogue with the great scientific minds that shaped our current understanding of physics. Beautifully illustrated, accurate in its scientific content and broad in its historical and cultural perspective, this book will be a valuable reference for scholars and an inspiration to aspiring scientists and humanists who believe that science is an integral part of our culture.

Dreaming in Code

From the author of *The Architecture of Happiness*, a deeply moving meditation on how we can still benefit, without believing, from the wisdom, the beauty, and the consolatory power that religion has to offer. Alain de Botton was brought up in a committedly atheistic household, and though he was powerfully swayed by his parents' views, he underwent, in his mid-twenties, a crisis of faithlessness. His feelings of doubt about atheism had their origins in listening to Bach's cantatas, were further developed in the presence of certain Bellini Madonnas, and became overwhelming with an introduction to Zen architecture. However, it was not until his father's death -- buried under a Hebrew headstone in a Jewish

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cemetery because he had intriguingly omitted to make more secular arrangements -- that Alain began to face the full degree of his ambivalence regarding the views of religion that he had dutifully accepted. Why are we presented with the curious choice between either committing to peculiar concepts about immaterial deities or letting go entirely of a host of consoling, subtle and effective rituals and practices for which there is no equivalent in secular society? Why do we bristle at the mention of the word "morality"? Flee from the idea that art should be uplifting, or have an ethical purpose? Why don't we build temples? What mechanisms do we have for expressing gratitude? The challenge that de Botton addresses in his book: how to separate ideas and practices from the religious institutions that have laid claim to them. In *Religion for Atheists* is an argument to free our soul-related needs from the particular influence of religions, even if it is, paradoxically, the study of religion that will allow us to rediscover and rearticulate those needs. From the Hardcover edition.

Turing's Cathedral

Winner of the 2012 Man Booker Prize Winner of the 2012 Costa Book of the Year Award The sequel to Hilary Mantel's 2009 Man Booker Prize winner and New York Times bestseller, *Wolf Hall* delves into the heart of Tudor history with the downfall of Anne Boleyn Though he battled for seven years to marry her, Henry is disenchanted with Anne Boleyn. She has failed to give him a son and her sharp intelligence and audacious will alienate his old friends and the noble families of England. When the discarded Katherine dies in exile from the court, Anne stands starkly exposed, the focus of gossip and malice. At a word from Henry, Thomas Cromwell is ready to bring her down. Over three terrifying weeks, Anne is ensnared in a web of conspiracy, while the demure Jane Seymour stands waiting her turn

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for the poisoned wedding ring. But Anne and her powerful family will not yield without a ferocious struggle. Hilary Mantel's *Bring Up the Bodies* follows the dramatic trial of the queen and her suitors for adultery and treason. To defeat the Boleyns, Cromwell must ally with his natural enemies, the papist aristocracy. What price will he pay for Anne's head? *Bring Up the Bodies* is one of *The New York Times'* 10 Best Books of 2012, one of *Publishers Weekly's* Top 10 Best Books of 2012 and one of *The Washington Post's* 10 Best Books of 2012

The Soul of A New Machine

Defining our true role in shaping the nature around us, an award-winning ecology writer searches for places untouched by human hands and discovers, along the way, that the environmental crisis we face today has been well under way for hundreds of years. 20,000 first printing.

The Dawn of Software Engineering

How did computers take over the world? In late 1945, a small group of brilliant engineers and mathematicians gathered at the newly created Institute for Advanced Study in Princeton, New Jersey. Their ostensible goal was to build a computer which would be instrumental in the US government's race to create a hydrogen bomb. The mathematicians themselves, however, saw their project as the realization of Alan Turing's theoretical 'universal machine.' In *Turing's Cathedral*, George Dyson vividly re-creates the intense experimentation, incredible mathematical insight and pure creative genius that led

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to the dawn of the digital universe, uncovering a wealth of new material to bring a human story of extraordinary men and women and their ideas to life. From the lowliest iPhone app to Google's sprawling metazoan codes, we now live in a world of self-replicating numbers and self-reproducing machines whose origins go back to a 5-kilobyte matrix that still holds clues as to what may lie ahead.

The Pattern On The Stone

Most people are baffled by how computers work and assume that they will never understand them. What they don't realize—and what Daniel Hillis's short book brilliantly demonstrates—is that computers' seemingly complex operations can be broken down into a few simple parts that perform the same simple procedures over and over again. Computer wizard Hillis offers an easy-to-follow explanation of how data is processed that makes the operations of a computer seem as straightforward as those of a bicycle. Avoiding technobabble or discussions of advanced hardware, the lucid explanations and colorful anecdotes in *The Pattern on the Stone* go straight to the heart of what computers really do. Hillis proceeds from an outline of basic logic to clear descriptions of programming languages, algorithms, and memory. He then takes readers in simple steps up to the most exciting developments in computing today—quantum computing, parallel computing, neural networks, and self-organizing systems. Written clearly and succinctly by one of the world's leading computer scientists, *The Pattern on the Stone* is an indispensable guide to understanding the workings of that most ubiquitous and important of machines: the computer.

A Cultural History of Physics

A double biography compares the lives and careers of two innovative mathematicians and assesses their respective contributions in the areas of quantum mechanics and cybernetics

A People's History of Computing in the United States

DCMM - Digital Capabilities Management Model is a radically new management model designed to support CIOs with their organization's digital transformation pathing the way for success in a new era by providing the "what" not just the "why." It offers entirely new thinking that will help you manage complexity, speed of change and uncertainty in the digital world. Taking inspirations from evolution, nature and collaborative networks, this new model provides you a new paradigm on managing IT, helping you initiate self-improvements and adaptations while the governing logic is focus on building digital capabilities rapidly for the benefit of your entire organization. This book isn't about high level concepts its practical steps that increase your ability to digitally collaborate both inside and outside of the traditional structures which is essential for adapting and surviving. The key focus is on minimizing administrative resources required to apply the model, so it releases resources for innovations and experimentation that will give you the competitive advantage the business needs. DCMM is a leap forward from traditional service thinking and brings IT governance in to 21st century thinking and beyond, evolution teach us survival is not the fittest but the most able to adapt. The Digital era which we have entered, should inspire us to build our management logic on collaborative effort, with shared

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objectives and motivations while enabling us to manage the risk of not reaching intended objectives in such an uncertain future. Collaboration, colleagues, stories, improvements, innovations, digital capabilities are building blocks of this book, targeted to modern CIO's, who are embarking on digital transformation and aim to be equipped with innovative and disruptive new management patterns that are driven by today's knowledge, not ideas from the past.

The Cathedral & the Bazaar

The Pacific Northwest experiences the most varied and fascinating weather in the United States, including world-record winter snows, the strongest non-tropical storms in the nation, and shifts from desert to rain forest in a matter of miles. Local weather features dominate the meteorological landscape, from the Puget Sound convergence zone and wind surges along the Washington Coast, to gap winds through the Columbia Gorge and the Banana Belt of southern Oregon. This book is the first comprehensive and authoritative guide to Northwest weather that is directed to the general reader; helpful to boaters, hikers, and skiers; and valuable to expert meteorologists. In *The Weather of the Pacific Northwest*, University of Washington atmospheric scientist and popular radio commentator Cliff Mass unravels the intricacies of Northwest weather, from the mundane to the mystifying. By examining our legendary floods, snowstorms, and windstorms, and a wide variety of local weather features, Mass answers such interesting questions as: o Why does the Northwest have localized rain shadows? o What is the origin of the hurricane force winds that often buffet the region? o Why does the Northwest have so few thunderstorms? o What is the origin of the Pineapple Express? o Why do ferryboats sometimes seem to float above the water's surface? o Why is it so hard to predict Northwest weather? Mass brings

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together eyewitness accounts, historical records, and meteorological science to explain Pacific Northwest weather. He also considers possible local effects of global warming. The final chapters guide readers in interpreting the Northwest sky and in securing weather information on their own.

Love and Math

Provides an expansion of Turing's original paper, a brief look at his life, and information on the Turing machine and computability topics.

The colonisation of time

An awesome, globe-spanning, and New York Times best-selling journey through the beauty and power of mathematics. What if you had to take an art class in which you were only taught how to paint a fence? What if you were never shown the paintings of van Gogh and Picasso, weren't even told they existed? Alas, this is how math is taught, and so for most of us it becomes the intellectual equivalent of watching paint dry. In *Love and Math*, renowned mathematician Edward Frenkel reveals a side of math we've never seen, suffused with all the beauty and elegance of a work of art. In this heartfelt and passionate book, Frenkel shows that mathematics, far from occupying a specialist niche, goes to the heart of all matter, uniting us across cultures, time, and space. *Love and Math* tells two intertwined stories: of the wonders of mathematics and of one young man's journey learning and living it. Having braved a discriminatory educational system to become one of the twenty-first century's leading mathematicians,

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Frenkel now works on one of the biggest ideas to come out of math in the last 50 years: the Langlands Program. Considered by many to be a Grand Unified Theory of mathematics, the Langlands Program enables researchers to translate findings from one field to another so that they can solve problems, such as Fermat's last theorem, that had seemed intractable before. At its core, *Love and Math* is a story about accessing a new way of thinking, which can enrich our lives and empower us to better understand the world and our place in it. It is an invitation to discover the magic hidden universe of mathematics.

Religion for Atheists

A noted journalist chronicles three years in the lives of a team of maverick software developers, led by Lotus 1-2-3 creator Mitch Kapor, intent on creating a revolutionary personal information manager to challenge Microsoft Outlook. Reprint. 30,000 first printing.

The Starship and the Canoe

A historical study of Chile's twin experiments with cybernetics and socialism, and what they tell us about the relationship of technology and politics.

The Idea Factory

Before Palm Pilots and iPods, PCs and laptops, the term "computer" referred to the people who did

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scientific calculations by hand. These workers were neither calculating geniuses nor idiot savants but knowledgeable people who, in other circumstances, might have become scientists in their own right. *When Computers Were Human* represents the first in-depth account of this little-known, 200-year epoch in the history of science and technology. Beginning with the story of his own grandmother, who was trained as a human computer, David Alan Grier provides a poignant introduction to the wider world of women and men who did the hard computational labor of science. His grandmother's casual remark, "I wish I'd used my calculus," hinted at a career deferred and an education forgotten, a secret life unappreciated; like many highly educated women of her generation, she studied to become a human computer because nothing else would offer her a place in the scientific world. The book begins with the return of Halley's comet in 1758 and the effort of three French astronomers to compute its orbit. It ends four cycles later, with a UNIVAC electronic computer projecting the 1986 orbit. In between, Grier tells us about the surveyors of the French Revolution, describes the calculating machines of Charles Babbage, and guides the reader through the Great Depression to marvel at the giant computing room of the Works Progress Administration. *When Computers Were Human* is the sad but lyrical story of workers who gladly did the hard labor of research calculation in the hope that they might be part of the scientific community. In the end, they were rewarded by a new electronic machine that took the place and the name of those who were, once, the computers.

Turing

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

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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.

Turing's Cathedral

A NEW YORK TIMES BESTSELLER The official book behind the Academy Award-winning film *The Imitation Game*, starring Benedict Cumberbatch and Keira Knightley It is only a slight exaggeration to say that the British mathematician Alan Turing (1912-1954) saved the Allies from the Nazis, invented the computer and artificial intelligence, and anticipated gay liberation by decades--all before his suicide at age forty-one. This New York Times--bestselling biography of the founder of computer science, with a new preface by the author that addresses Turing's royal pardon in 2013, is the definitive account of an extraordinary mind and life. Capturing both the inner and outer drama of Turing's life, Andrew Hodges tells how Turing's revolutionary idea of 1936--the concept of a universal machine--laid the foundation for the modern computer and how Turing brought the idea to practical realization in 1945 with his electronic design. The book also tells how this work was directly related to Turing's leading role in breaking the German Enigma ciphers during World War II, a scientific triumph that was critical to Allied victory in the Atlantic. At the same time, this is the tragic account of a man who, despite his wartime service, was eventually arrested, stripped of his security clearance, and forced to undergo a humiliating treatment program--all for trying to live honestly in a society that defined homosexuality as

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a crime. The inspiration for a major motion picture starring Benedict Cumberbatch and Keira Knightley, *Alan Turing: The Enigma* is a gripping story of mathematics, computers, cryptography, and homosexual persecution.

Bring Up the Bodies

Through *Euclid's Window* Leonard Mlodinow brilliantly and delightfully leads us on a journey through five revolutions in geometry, from the Greek concept of parallel lines to the latest notions of hyperspace. Here is an altogether new, refreshing, alternative history of math revealing how simple questions anyone might ask about space -- in the living room or in some other galaxy -- have been the hidden engine of the highest achievements in science and technology. Based on Mlodinow's extensive historical research; his studies alongside colleagues such as Richard Feynman and Kip Thorne; and interviews with leading physicists and mathematicians such as Murray Gell-Mann, Edward Witten, and Brian Greene, *Euclid's Window* is an extraordinary blend of rigorous, authoritative investigation and accessible, good-humored storytelling that makes a stunningly original argument asserting the primacy of geometry. For those who have looked through *Euclid's Window*, no space, no thing, and no time will ever be quite the same.

Globalization and Time

On technological development and computer development.

When Computers Were Human

'Full of historical anecdotes . . . but this is much more than a history book. [George Dyson] weaves his threads together for a purpose. Using voices of the past and present, he describes a fresh and sometimes startling viewpoint of the emerging relationship between nature and machines. From vignettes about Olaf Stapledon, George Boole, John von Neumann, and Samuel Butler, a larger story develops in which the twin processes of intelligence and evolution are inseparably intertwined' Danny Hillis, *Wired*

Tools for Thought

A brilliant combination of history and personal recollections documents the incredible story of a wild idea--a spacecraft powered by hydrogen bombs--and brings to life an episode in U.S. scientific research that brought together a vast array of brilliant physicists, including the author's father, who participated in the vision of a renowned theoretician, during the political and cultural backdrop of the Cold War. Reprint. 12,500 first printing.

John von Neumann: The Scientific Genius Who Pioneered the Modern Computer, Game Theory, Nuclear Deterrence, and Much More

“It is possible to invent a single machine which can be used to compute any computable sequence,” twenty-four-year-old Alan Turing announced in 1936. In Turing’s Cathedral, George Dyson focuses on

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a small group of men and women, led by John von Neumann at the Institute for Advanced Study in Princeton, New Jersey, who built one of the first computers to realize Alan Turing's vision of a Universal Machine. Their work would break the distinction between numbers that mean things and numbers that do things—and our universe would never be the same. Using five kilobytes of memory (the amount allocated to displaying the cursor on a computer desktop of today), they achieved unprecedented success in both weather prediction and nuclear weapons design, while tackling, in their spare time, problems ranging from the evolution of viruses to the evolution of stars. Dyson's account, both historic and prophetic, sheds important new light on how the digital universe exploded in the aftermath of World War II. The proliferation of both codes and machines was paralleled by two historic developments: the decoding of self-replicating sequences in biology and the invention of the hydrogen bomb. It's no coincidence that the most destructive and the most constructive of human inventions appeared at exactly the same time. How did code take over the world? In retracing how Alan Turing's one-dimensional model became John von Neumann's two-dimensional implementation, Turing's Cathedral offers a series of provocative suggestions as to where the digital universe, now fully three-dimensional, may be heading next.

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