Henri Poincar A Scientific Biography

"The Foundations of Science: Science and Hypothesis, The Value of Science, Science and Method" by Henri Poincaré (translated by George Bruce Halsted). 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.

On July 17, 2012, the centenary of Henri Poincar 's death was commemorated; his name being associated with so many fields of knowledge that he was considered as the Last Universalist. In Pure and Applied Mathematics, Physics, Astronomy, Engineering and Philosophy, his works have had a great impact all over the world. Poincar acquired in his lifetime such a reputation that, both nationally and internationally, his life and career were made the object of various articles in the daily papers not only in France, but also in the USA. Some of his philosophical concepts have even caused sharp controversies in the Press (as we will discover in this book). This work presents an original portrait of Henri Poincar based on various press cuttings from The New York Times, The San Francisco Sunday Call, The Times, The Sun, The Washington Post that chronicled unknown anecdotes of his life (for example, his first name was actually not Henri, but Henry; he obtained his high school diploma in sciences with a zero in mathematics, etc.). Such an approach enables the discovering of many forgotten or unknown aspects of his scientific and philosophical works as well as his important role in the public sphere.

A prismatic look at the meeting of Marie Curie and Albert Einstein and the impact these two pillars of science had on the world of physics, which was in turmoil. In 1911, some of the greatest minds in science convened at the First Solvay Conference in Physics, a meeting like no other. Almost half of the attendees had won or would go on to win the Nobel Prize. Over the course of those few days, these minds began to realize that classical physics was about to give way to quantum theory, a seismic shift in our history and how we understand not just our world, but the universe. At the center of this meeting were Marie Curie and a young Albert Einstein. In the years preceding, Curie had faced the death of her husband and soul mate, Pierre. She was on the cusp of being awarded her second Nobel Prize, but scandal erupted all around her when the French press revealed that she was having an affair with a fellow scientist, Paul Langevin. The subject of vicious misogynist and xenophobic attacks in the French press, Curie found herself in a storm that threatened her scientific legacy. Albert Einstein proved an supporter in her travails. They had an instant connection at Solvay. He was young and already showing flourishes of his enormous genius. Curie had been responsible for one of the greatest discoveries in modern science (radioactivity) but still faced resistance and scorn. Einstein recognized this grave injustice, and their mutual admiration and respect, borne out of this, their first meeting, would go on to serve them in their paths forward to making history. Curie and Einstein come alive as the complex people they were in the pages of The Soul of Genius. Utilizing never before seen correspondance and notes, Jeffrey Orens reveals the human side of these brilliant scientists, one who pushed boundaries and demanded equality in a man’s world, no matter the cost, and the other, who was destined to become synonymous with genius.

Celestial Encounters is for anyone who has ever wondered about the foundations of chaos. In 1888, the 34-year-old Henri Poincaré submitted a paper that was to change the course of science, but not before it underwent significant changes itself. "The Three-Body Problem and the Equations of Dynamics" won a prize sponsored by King Oscar II of Sweden and Norway and the journal Acta Mathematica, but after accepting the prize, Poincaré found a serious mistake in his work. While correcting it, he discovered the phenomenon of chaos. Starting with the story of Poincaré's work, Florin Diacu and Philip Holmes trace the history of attempts to solve the problems of celestial mechanics first posed in Isaac Newton's Principia in 1686. In describing how mathematical rigor was brought to bear on one of our oldest fascinations--the motions of the heavens--they introduce the people whose ideas led to the flourishing field now called nonlinear dynamics. In presenting the modern theory of dynamical systems, the models underlying much of modern science are described pictorially, using the geometrical language invented by Poincaré. More generally, the authors reflect on mathematical creativity and the roles that chance encounters, politics, and circumstance play in it.

Henri PoincaréA Scientific BiographyPrinceton University Press

Rolfsen's beautiful book on knots and links can be read by anyone, from beginner to expert, who wants to learn about knot theory. Beginners find an inviting introduction to the elements of topology, emphasizing the tools needed for understanding knots, the fundamental group and van Kampen's theorem, for example, which are then applied to concrete problems, such as computing knot groups. For experts, Rolfsen explains advanced topics, such as the connections between knot theory and surgery and how they are useful to understanding three-manifolds. Besides providing a guide to understanding knot theory, the book offers 'practical' training. After reading it, you will be able to do many things: compute presentations of knot groups, Alexander polynomials, and other invariants; perform surgery on three-manifolds; and visualize knots and their complements.It is characterized by its hands-on approach and emphasis on a visual, geometric understanding. Rolfsen offers invaluable insight and strikes a perfect balance between giving technical details and offering informal explanations. The illustrations are superb, and a wealth of examples are included. Now back in print by the AMS, the book is still a standard reference in knot theory. It is written in a remarkable style that makes it useful for both beginners and researchers. Particularly noteworthy is the table of knots and links at the end. This volume is an excellent introduction to the topic and is suitable as a textbook for a course in knot theory or 3-manifolds. Other key books of interest on this topic available from the AMS are ""The Shoelace Book: A Mathematical Guide to the Best (and Worst) Ways to Lace your Shoes"" and ""The Knot Book"".

The Value of ScienceLa Valeur de la ScienceHenri PoincarThe Value of Science (French: La Valeur de la Science) is a book by the French mathematician, physicist, and philosopher Henri Poincar. It was published in 1905. The book deals with questions in the philosophy of science and adds detail to the topics addressed by Poincar's previous book, Science and Hypothesis (1902).The search for truth should be the goal of our activities; it is the sole end worthy of them. Doubtless we should first bend our efforts to assuage human suffering, but why? Not to suffer is a negative ideal more surely attained by the annihilation of the world. If we wish more and more to free man from material cares, it is that he may be able to employ the liberty obtained in the study and contemplation of truth.But sometimes truth frightens us. And in fact we know that it is sometimes deceptive, that it is a phantom never showing itself for a moment except to ceaselessly flee, that it must be pursued further and ever further without ever being attained. Yet to work one must stop, as some Greek, Aristotle or another, has said. We also know how cruel the truth often is, and we wonder whether illusion is not more consoling, yea, even more bracing, for illusion it is which gives confidence. When it shall have vanished, will hope remain and shall we have the courage to achieve? Thus would not the horse harnessed to his treadmill refuse to go, were his eyes not bandaged? And then to seek truth it is necessary to be independent, wholly independent. If, on the contrary, we wish to act, to be strong, we should be united. This is why many of us fear truth; we consider it a cause of weakness. Yet truth should not be feared, for it alone is beautiful.

What drove Nobel-winning physicist Hans Bethe, head of Theoretical Physics at Los Alamos during the Manhattan Project, to later renounce the weaponry he had worked so tirelessly to create? That is one of the questions answered by Nuclear Forces, a riveting biography of Bethe’s early life and development as both a scientist and a man of principle.

Henri Poincaré (1854-1912) was not just one of the most inventive, versatile, and productive mathematicians of all time--he was also a leading physicist who almost won a Nobel Prize for physics and a prominent philosopher of science whose fresh and surprising essays are still in print a century later. The first in-depth and comprehensive look at his many accomplishments, Henri Poincaré explores all the fields that Poincaré touched, the debates sparked by his original investigations, and how his discoveries still contribute to society today. Math historian Jeremy Gray shows that Poincaré's influence was wide-ranging and permanent. His novel interpretation of non-Euclidean geometry challenged contemporary ideas about space, stirred heated discussion, and led to flourishing research. His work in topology began the modern study of the subject, recently highlighted by the successful resolution of the famous Poincaré conjecture. And Poincaré's reformulation of celestial mechanics and discovery of chaotic motion started the modern theory of dynamical systems. In physics, his insights on the Lorentz group preceded Einstein's, and he was the first to indicate that space and time might be fundamentally atomic. Poincaré the public intellectual did not shy away from scientific controversy, and he defended mathematics against the attacks of logicians such as Bertrand Russell, opposed the views of Catholic apologists, and served as an expert witness in probability for the notorious Dreyfus case that polarized France. Richly informed by letters and documents, Henri Poincaré demonstrates how one man's work revolutionized math, science, and the greater world.

Gösta Mittag-Leffler (1846–1927) played a significant role as both a scientist and entrepreneur. Regarded as the father of Swedish mathematics, his influence extended far beyond his chosen field because of his extensive network of international contacts in science, business, and the arts. He was instrumental in seeing to it that Marie Curie was awarded the Nobel Prize twice. One of Mittag-Leffler’s major accomplishments was the founding of the journal Acta Mathematica , published by Institut Mittag-Leffler and Sweden’s Royal Academy of Sciences. Arild Stubhaug’s research for this monumental biography relied on a wealth of primary and secondary resources, including more than 30000 letters that are part of the Mittag-Leffler archives. Written in a lucid and compelling manner, the biography contains many hitherto unknown facts about Mittag-Leffler’s personal life and professional endeavors. It will be of great interest to both mathematicians and general readers interested in science and culture.

The amazing story of one of the greatest math problems of all time and the reclusive genius who solved it In the tradition of Fermat’s Enigma and Prime Obsession, George Szpiro brings to life the giants of mathematics who struggled to prove a theorem for a century and the mysterious man from St. Petersburg, Grigory Perelman, who fi nally accomplished the impossible. In 1904 Henri Poincaré developed the Poincaré Conjecture, an attempt to understand higher-dimensional space and possibly the shape of the universe. The problem was he couldn’t prove it. A century later it was named a Millennium Prize problem, one of the seven hardest problems we can imagine. Now this holy grail of mathematics has been found. Accessibly interweaving history and math, Szpiro captures the passion, frustration, and excitement of the hunt, and provides a fascinating portrait of a contemporary noble-genius.

The Works of Henri Poincare is a classic collection of mathematical and physics works by the great scientist.

On July 17, 2012, the centenary of Henri Poincaré's death was commemorated; his name being associated with so many fields of knowledge that he was considered as the Last Universalist. In Pure and Applied Mathematics, Physics, Astronomy, Engineering and Philosophy, his works have had a great impact all over the world. Poincaré acquired in his lifetime such a reputation that, both nationally and internationally, his life and career were made the object of various articles in the daily papers not only in France, but also in the USA. Some of his philosophical concepts have even caused sharp controversies in the Press (as we will discover in this book). This work presents an original portrait of Henri Poincaré based on various press cuttings from The New York Times, The San Francisco Sunday Call, The Times, The Sun, The Washington Post that chronicled unknown anecdotes of his life (for example, his first name was actually not Henri, but Henry; he obtained his high school diploma in sciences with a zero in mathematics, etc.). Such an approach enables the discovering of many forgotten or unknown aspects of his scientific and philosophical works as well as his important role in the public sphere. Contents:The Early Years:The Poincaré FamilyChildhood and StudiesInspector of Mines in VesoulThe Professor and the Savant:From the University of Caen to the SorbonneFrom the Sorbonne to the AcadémieThe Prize of King Oscar II of Sweden and NorwayThe Universal Thinker and the Public Figure:French Geodesy and the Fight Over the MeridianThe Controversy Over the Rotation of the EarthThe Philosophical Work and Its ImpactThe Committed Man:The Dreyfus AffairThe Role Model — The ImmortalLast Commitments, Last Works Readership: Scientists and historians of science. Keywords:Scientific Biography;Henri PoincarÃ©Key Features:A biography through the daily papers which has been facilitated by the online newspaper archives provides, for the first time, an original portrait of Henri PoincaréReviews: “The full review in chapter 9 gives an excellent description of Poincaré's interpretation of non-Euclidean geometry and his wider views on mathematics, and it would make very informative reading for contemporary students of this subject. I very much enjoyed reading this book, it portrays many lesser-known aspects of Poincaré's life and work; and it is richly illustrated with facsimiles from a variety of unusual sources.” Mathematical Association of America “This book is a welcome addition to the many biographies of Poincaré that exist already. It sheds a light on Poincaré from a different perspective that we do not find elsewhere.” European Mathematical Society “Ginoux and Gerini have inspired this reviewer to further explore Poincaré's writings for the lay public.” CHOICE “The presentation of his involvement in Ernst Mach's thinking and the Earth's rotation is the high point of this small book.” CERN Courier

The little-known story of the architectural project that lay at the heart of Tom Paine’s political blueprint for the United States. In a letter to his wife Abigail, John Adams judged the author of Common Sense as having “a better hand at pulling down than building.” Adams’s dismissive remark has helped shape the prevailing view of Tom Paine ever since. But, as Edward G. Gray shows in this fresh, illuminating work, Paine was a builder. He had a clear vision of success for his adopted country. It was embodied in an architectural project that he spent a decade planning: an iron bridge to span the Schuylkill River at Philadelphia. When Paine arrived in Philadelphia from England in 1774, the city was thriving as America’s largest port. But the seasonal dangers of the rivers dividing the region were becoming an obstacle to the city’s continued growth. Philadelphia needed a practical connection between the rich grain of Pennsylvania’s backcountry farms and its port on the Delaware. The iron bridge was Paine’s solution. The bridge was part of Paine’s answer to the central political challenge of the new nation: how to sustain a republic as large and as geographically fragmented as the United States. The iron construction was Paine’s brilliant response to the age-old challenge of bridge technology: how to build a structure strong enough to withstand the constant battering of water, ice, and wind. The convergence of political and technological design in Paine’s plan was Enlightenment genius. And Paine drew other giants of the period as patrons: Benjamin Franklin, George Washington, Thomas Jefferson, and for a time his great ideological opponent, Edmund Burke. Paine’s dream

ultimately was a casualty of the vicious political crosscurrents of revolution and the American penchant for bridges of cheap, plentiful wood. But his innovative iron design became the model for bridge construction in Britain as it led the world into the industrial revolution.

Subtle is the Lord is widely recognized as the definitive scientific biography of Albert Einstein. The late Abraham Pais was a distinguished physicist turned historian who knew Einstein both professionally and personally in the last years of his life. His biography combines a profound understanding of Einstein's work with personal recollections from their years of acquaintance, illuminating the man through the development of his scientific thought.Pais examines the formulation of Einstein's theories of relativity, his work on Brownian motion, and his response to quantum theory with authority and precision. The profound transformation Einstein's ideas effected on the physics of the turn of the century is here laid out for the serious reader. Pais also fills many gaps in what we know of Einstein's life - his interest in philosophy, his concern with Jewish destiny, and his opinions of great figures from Newton to Freud. This remarkablevolume, written by a physicist who mingled in Einstein's scientific circle, forms a timeless and classic biography of the towering figure of twentieth-century science.

In 2010, French mathematician Cédric Villani received the Fields Medal, the most coveted prize in mathematics, in recognition of a proof which he devised with his close collaborator Clément Mouhot to explain one of the most surprising theories in classical physics. Birth of a Theorem is Villani's own account of the years leading up to the award. It invites readers inside the mind of a great mathematician as he wrestles with the most important work of his career. But you don't have to understand nonlinear Landau damping to love Birth of a Theorem. It doesn't simplify or overexplain; rather, it invites readers into collaboration. Villani's diaries, emails, and musings enmesh you in the process of discovery. You join him in unproductive lulls and late-night breakthroughs. You're privy to the dining-hall conversations at the world's greatest research institutions. Villani shares his favorite songs, his love of manga, and the imaginative stories he tells his children. In mathematics, as in any creative work, it is the thinker's whole life that propels discovery—and with Birth of a Theorem, Cédric Villani welcomes you into his.

"More than a history of science; it is a tour de force in the genre."—New York Times Book Review A dramatic new account of the parallel quests to harness time that culminated in the revolutionary science of relativity, Einstein's Clocks, Poincaré's Maps is "part history, part science, part adventure, part biography, part meditation on the meaning of modernity....In Galison's telling of science, the meters and wires and epoxy and solder come alive as characters, along with physicists, engineers, technicians and others....Galison has unearthed fascinating material" (New York Times). Clocks and trains, telegraphs and colonial conquest: the challenges of the late nineteenth century were an indispensable real-world background to the enormous theoretical breakthrough of relativity. And two giants at the foundations of modern science were converging, step-by-step, on the answer: Albert Einstein, an young, obscure German physicist experimenting with measuring time using telegraph networks and with the coordination of clocks at train stations; and the renowned mathematician Henri Poincaré, president of the French Bureau of Longitude, mapping time coordinates across continents. Each found that to understand the newly global world, he had to determine whether there existed a pure time in which simultaneity was absolute or whether time was relative. Esteemed historian of science Peter Galison has culled new information from rarely seen photographs, forgotten patents, and unexplored archives to tell the fascinating story of two scientists whose concrete, professional preoccupations engaged them in a silent race toward a theory that would conquer the empire of time.

The most important scientist of the twentieth century and the most important artist had their periods of greatest creativity almost simultaneously and in remarkably similar circumstances. This fascinating parallel biography of Albert Einstein and Pablo Picasso as young men examines their greatest creations -- Picasso's Les Demoiselles d'Avignon and Einstein's special theory of relativity. Miller shows how these breakthroughs arose not only from within their respective fields but from larger currents in the intellectual culture of the times. Ultimately, Miller shows how Einstein and Picasso, in a deep and important sense, were both working on the same problem.

Each entry gives short to lengthy biographical information. Subject and name index.

Henri Poincaré was one of the greatest mathematicians of the late nineteenth and early twentieth century. He revolutionized the field of topology, which studies properties of geometric configurations that are unchanged by stretching or twisting. The Poincaré conjecture lies at the heart of modern geometry and topology, and even pertains to the possible shape of the universe. The conjecture states that there is only one shape possible for a finite universe in which every loop can be contracted to a single point. Poincaré's conjecture is one of the seven "millennium problems" that bring a one-million-dollar award for a solution. Grigory Perelman, a Russian mathematician, has offered a proof that is likely to win the Fields Medal, the mathematical equivalent of a Nobel prize, in August 2006. He also will almost certainly share a Clay Institute millennium award. In telling the vibrant story of The Poincaré Conjecture, Donal O'Shea makes accessible to general readers for the first time the meaning of the conjecture, and brings alive the field of mathematics and the achievements of generations of mathematicians whose work have led to Perelman's proof of this famous conjecture.

An acclaimed biography of the Enlightenment's greatest mathematician This is the first full-scale biography of Leonhard Euler (1707–1783), one of the greatest mathematicians and theoretical physicists of all time. In this comprehensive and authoritative account, Ronald Calinger connects the story of Euler's eventful life to the astonishing achievements that place him in the company of Archimedes, Newton, and Gauss. Drawing on Euler's massive published works and correspondence, this biography sets Euler's work in its multilayered context—personal, intellectual, institutional, political, cultural, religious, and social. It is a story of nearly incessant accomplishment, from Euler's fundamental contributions to almost every area of pure and applied mathematics in his time—especially calculus, mechanics, and optics—to his advances in shipbuilding, telescopes, acoustics, ballistics, cartography, chronology, and music theory.

Fritz London was one of the twentieth century's key figures in the development of quantum physics. A quiet and self-effacing man, he was one of the founders of quantum chemistry, and was the first to give a phenomenological explanation of superconductivity. This thoroughly researched biography gives a detailed account of London's life and work in Munich, Berlin, Oxford, Paris, and finally in the United States. Also, by following his correspondence, collaborations, and controversies with other leading physicists and chemists including Erwin Schrödinger, Walter Heitler, Linus Pauling, Robert Mulliken, John van Vleck, Max von Laue, and Lev Landau, it examines the process by which scientific theories become legitimized. Covering a fascinating period in the development of theoretical physics, and containing an appraisal of London's work by the late John Bardeen, this

book will be of great interest to physicists, chemists, and to anyone interested in the history of science.
Presents the life of the renowned physicist, from his privileged childhood to his early struggles to develop the theory of relativity, and his eventual recognition as one of the greatest scientists of the twentieth century.
Draws on diaries, letters, and family interviews to discusses the lesser-known achievements and scientific insights of the Nobel Prize-winning scientist and producer of radium, documenting how she was compromised by the prejudices of a male-dominated society in spite of her accomplishments. 30,000 first printing.
“Jeremy Gray is one of the world’s leading historians of mathematics, and an accomplished author of popular science. In Simply Riemann he combines both talents to give us clear and accessible insights into the astonishing discoveries of Bernhard Riemann—a brilliant but enigmatic mathematician who laid the foundations for several major areas of today’s mathematics, and for Albert Einstein’s General Theory of Relativity. Readable, organized—and simple. Highly recommended.” —Ian Stewart, Emeritus Professor of Mathematics at Warwick University and author of Significant Figures Born to a poor Lutheran pastor in what is today the Federal Republic of Germany, Bernhard Riemann (1826-1866) was a child math prodigy who began studying for a degree in theology before formally committing to mathematics in 1846, at the age of 20. Though he would live for only another 20 years (he died of pleurisy during a trip to Italy), his seminal work in a number of key areas—several of which now bear his name—had a decisive impact on the shape of mathematics in the succeeding century and a half. In Simply Riemann, author Jeremy Gray provides a comprehensive and intellectually stimulating introduction to Riemann’s life and paradigm-defining work. Beginning with his early influences—in particular, his relationship with his renowned predecessor Carl Friedrich Gauss—Gray goes on to explore Riemann’s specific contributions to geometry, functions of a complex variable, prime numbers, and functions of a real variable, which opened the way to discovering the limits of the calculus. He shows how without Riemannian geometry, cosmology after Einstein would be unthinkable, and he illuminates the famous Riemann hypothesis, which many regard as the most important unsolved problem in mathematics today. With admirable concision and clarity, Simply Riemann opens the door on one of the most profound and original thinkers of the 19th century—a man who pioneered the concept of a multidimensional reality and who always saw his work as another way to serve God.
Einstein is considered the world's greatest genius for creating the theory of relativity. How Einstein Ruined Physics explains relativity, how it was discovered, and how it fits into a long history of trying to understand motion and symmetry. The book shows that Einstein's role is badly misunderstood.Modern physics books often describe a fantasy world that has less and less to do with reality. They tell of alternate universes, cosmic singularities, and extra dimensions. When they lack evidence for these ideas, they argue that they are following Einstein's example and looking for the next revolution.Einstein's example is detailed. He is famous for uniting space and time in the theory of relativity, and for revolutionizing science with pure thought. In fact, his famous relativity paper merely postulated what had previously been proved, and he did not even understand why space and time were being united. The essentials of relativity are explained, along with how they were discovered.The crucial ideas behind relativity are motion and symmetry, and these are the most basic ideas on all of science. Relativity was the culmination of an ancient quest to understand the motion of the Earth. The story takes us from ancient Greeks like Aristotle, through medieval debates over Copernicus and Galileo, and up to the modern search for dark matter and energy.Somehow it has become fashionable in physics to try for some sort of abstract Einsteinian revolution instead of explaining observable realities. This book dispels the myths about physics progressing by pure thought, and shows that following Einstein's dream is an entirely bad idea. Published by Dark Buzz.
Paul Dirac was among the great scientific geniuses of the modern age. One of the discoverers of quantum mechanics, the most revolutionary theory of the past century, his contributions had a unique insight, eloquence, clarity, and mathematical power. His prediction of antimatter was one of the greatest triumphs in the history of physics. One of Einstein’s most admired colleagues, Dirac was in 1933 the youngest theoretician ever to win the Nobel Prize in physics. Dirac’s personality is legendary. He was an extraordinarily reserved loner, relentlessly literal-minded and appeared to have no empathy with most people. Yet he was a family man and was intensely loyal to his friends. His tastes in the arts ranged from Beethoven to Cher, from Rembrandt to Mickey Mouse. Based on previously undiscovered archives, The Strangest Man reveals the many facets of Dirac’s brilliantly original mind. A compelling human story, The Strangest Man also depicts a spectacularly exciting era in scientific history.
The book describes the life of Henri Poincaré, his work style and in detail most of his unique achievements in mathematics and physics. Apart from biographical details, attention is given to Poincaré's contributions to automorphic functions, differential equations and dynamical systems, celestial mechanics, mathematical physics in particular the theory of the electron and relativity, topology (analysis situs). A chapter on philosophy explains Poincaré's conventionalism in mathematics and his view of conventionalism in physics; the latter has a very different character. In the foundations of mathematics his position is between intuitionism and axiomatics. One of the purposes of the book is to show how Poincaré reached his fundamentally new results in many different fields, how he thought and how one should read him. One of the new aspects is the description of two large fields of his attention: dynamical systems as presented in his book on `new methods for celestial mechanics' and his theoretical physics papers. At the same time it will be made clear how analysis and geometry are intertwined in Poincaré's thinking and work.In dynamical systems this becomes clear in his description of invariant manifolds, his association of differential equation flow with mappings and his fixed points theory. There is no comparable book on Poincaré, presenting such a relatively complete vision of his life and achievements. There exist some older biographies in the French language, but they pay only restricted attention to his actual work. The reader can obtain from this book many insights in the working of a very original mind while at the same time learning about fundamental results for modern science

The first full length biography of Dirac, one of the most brilliant physicists of the twentieth century.

The papers in this book chronicle Henri Poincare's Journey in algebraic topology between 1892 and 1904, from his discovery of the fundamental group to his formulation of the Poincare conjecture. For the first time in English translation, one can follow every step (and occasional stumble) along the way, with the help of translator John Stillwell's introduction and editorial comments. Now that the Poincare conjecture has finally been proved, by Grigory perelman, it seems timely to collect the papers that from the background to this famous conjecture. Poincare's papers are in fact the first draft of algebraic topology, introducing its main subject matter (manifolds) and basic concepts (homotopy and homology). All mathematicians interested in topology and its history will enjoy this book. These famous papers, with their characteristic mixture of deep insight and inevitable confusion, are here presented complete and in English for the first time, with a commentary by their translator, John Stillwell, that guides the reader into the beart of the subject. One of the finest works of one of the great mathematicians is now available anew for students and experts alike.---Jeremy Gray The AMS and John Stillwell have made an important contribution to the mathematics literature in this translation of Poincare. For many of us, these great papers on the foundations of topology are given greater clarity in English. Moreover, reading Poincare here illustrates the ultimate in research by successive approximations (akin to my own way of mathematical thinking)---Stephen Smale I am a proud owner of the original complete works in green leather in French bought for a princely sum in Paris around 1975. I have read in them exten-sively, and often during topology lectures I refer to parts of these works. I am happy that there is now the option for my students to read them in English---Dennis Sullivan

Based on the latest historical research, Worlds Out of Nothing is the first book to provide a course on the history of geometry in the 19th century. Topics covered in the first part of the book are projective geometry, especially the concept of duality, and non-Euclidean geometry. The book then moves on to the study of the singular points of algebraic curves (Plücker’s equations) and their role in resolving a paradox in the theory of duality; to Riemann’s work on differential geometry; and to Beltrami’s role in successfully establishing non-Euclidean geometry as a rigorous mathematical subject. The final part of the book considers how projective geometry rose to prominence, and looks at Poincaré’s ideas about non-Euclidean geometry and their physical and philosophical significance. Three chapters are devoted to writing and assessing work in the history of mathematics, with examples of sample questions in the subject, advice on how to write essays, and comments on what instructors should be looking for.

Poincare's famous memoir on the three body problem arose from his entry in the competition celebrating the 60th birthday of King Oscar of Sweden and Norway. His essay won the prize and was set up in print as a paper in Acta Mathematica when it was found to contain a deep and critical error. In correcting this error Poincare discovered mathematical chaos, as is now clear from June Barrow-Green's pioneering study of a copy of the original memoir annotated by Poincare himself, recently discovered in the Institut Mittag-Leffler in Stockholm. Poincare and the Three Body Problem opens with a discussion of the development of the three body problem itself and Poincare's related earlier work. The book also contains intriguing insights into the contemporary European mathematical community revealed by the workings of the competition. After an account of the discovery of the error and a detailed comparative study of both the original memoir and its rewritten version, the book concludes with an account of the final memoir's reception, influence and impact, and an examination of Poincare's subsequent highly influential work in celestial mechanics.

"The Principles of Mathematical Physics" by Henri Poincaré (translated by George Bruce Halsted). 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 vivid study of the life and times of seventeenth-century scientist Robert Hooke captures the diverse facets of his life as an astronomer, inventor, anatomist, diarist, and more, examining his contributions in an era in which Hooke's reputation was dramatically overshadowed by those of such contemporaries as Sir Christopher Wren and Sir Isaac Newton. Reprint.

Plato's Ghost is the first book to examine the development of mathematics from 1880 to 1920 as a modernist transformation similar to those in art, literature, and music. Jeremy Gray traces the growth of mathematical modernism from its roots in problem solving and theory to its interactions with physics, philosophy, theology, psychology, and ideas about real and artificial languages. He shows how mathematics was popularized, and explains how mathematical modernism not only gave expression to the work of mathematicians and the professional image they sought to create for themselves, but how modernism also introduced deeper and ultimately unanswerable questions. Plato's Ghost evokes Yeats's lament that any claim to worldly perfection inevitably is proven wrong by the philosopher's ghost; Gray demonstrates how modernist mathematicians believed they had advanced further than anyone before them, only to make more profound mistakes. He tells for the first time the story of these ambitious and brilliant mathematicians, including Richard Dedekind, Henri Lebesgue, Henri Poincaré, and many others. He describes the lively debates surrounding novel objects, definitions, and proofs in mathematics arising from the use of naïve set theory and the revived axiomatic method--debates that spilled over into contemporary arguments in philosophy and the sciences and drove an upsurge of popular writing on mathematics. And he looks at mathematics after World War I, including the foundational crisis and mathematical Platonism. Plato's Ghost is essential reading for mathematicians and historians, and will appeal to anyone interested in the development of modern mathematics.