Did The Scientific Revolution And The Enlightenment

The Scientific RevolutionUniversity of Chicago Press

This eye-opening look at the intellectual culture of today--in which science, not literature or philosophy, takes center stage in the debate over human nature and the nature of the universe--is certain to spark fervent intellectual debate.

The Ptolemaic system of the universe, with the earth at the center, had held sway since antiquity as authoritative in philosophy, science, and church teaching. Following his observations of the heavenly bodies, Nicolaus Copernicus (1473-1543) abandoned the geocentric system for a heliocentric model, with the sun at the center. His remarkable work, On the Revolutions of Heavenly Spheres, stands as one of the greatest intellectual revolutions of all time, and profoundly influenced, among others, Galileo and Sir Isaac Newton.

The development of science has been an ideological struggle that lasted over three millennia. At and after the times of the Babylonian Empire, however, the pace of scientific evolution was painfully slow. This situation changed after Copernicus kick-started the Scientific Revolution with his heliocentric theory. Newton’s law of universal gravitation transformed natural philosophy, previously focused on mythology and abstract philosophical thinking, into an orderly and rational physical science. Einstein’s redefinition of space and time revealed a new and central principle of the Universe, paving the way for the huge amounts of energy held deep inside physical matter to be released. To this day, many of the our known physical theories represent an accumulation of changing knowledge over the long course of scientific history. But what kind of changes did the scientists see? What questions did they address? What methods did they use? What difficulties did they encounter? And what kind of persecution might they have faced on the road to discovering these beautiful, sometimes almost mystical, ideas? This book’s purpose is to investigate these questions. It leads the reader through the stories behind major scientific advancements and their theories, as well as explaining associated examples and hypotheses. Over the course of the journey, readers will come to understand the way scientists explore nature and how scientific theories are applied to natural phenomena and every-day technology.

The Scientific Revolution: A Very Short Introduction

The Darwinian Revolution

Elizabethan London and the Scientific Revolution

Controversies Within the Scientific Revolution

A Historiographical Inquiry

Encyclopedia of the Scientific Revolution

“The Knowledge Machine is the most stunningly illuminating book of the last several decades regarding the all-important scientific enterprise.” —Rebecca Newberger Goldstein, author of Plato at the Googleplex A paradigm-shifting work, The Knowledge Machine revolutionizes our understanding of the origins and structure of science. • Why is science so powerful? • Why did it take so long—two thousand years after the invention of philosophy and mathematics—for the human race to start using science to learn the secrets of the universe? In a groundbreaking work that blends science, philosophy, and history, leading philosopher of science Michael Strevens answers these challenging questions, showing how science came about only once thinkers stumbled upon the astonishing idea that scientific breakthroughs could be accomplished by breaking the rules of logical argument. Like such classic works as Karl Popper’s The Logic of Scientific Discovery and Thomas Kuhn’s The Structure of Scientific Revolutions, The Knowledge Machine grapples with the meaning and origins of science, using a plethora of vivid historical examples to demonstrate that scientists willfully ignore religion, theoretical beauty, and even philosophy to embrace a constricted code of argument whose very narrowness channels unprecedented energy into empirical observation and experimentation. Strevens calls this scientific code the iron rule of explanation, and reveals the way in which the rule, precisely because it is unreasonably close-minded, overcomes individual prejudices to lead humanity inexorably toward the secrets of nature. “With a mixture of philosophical and historical argument, and written in an engrossing style” (Alan Ryan), The Knowledge Machine provides captivating portraits of some of the greatest luminaries in science’s history, including Isaac Newton, the chief architect of modern science and its foundational theories of motion and gravitation; William Whewell, perhaps the greatest philosopher-scientist of the early nineteenth century; and Murray Gell-Mann, discoverer of the quark. Today, Strevens argues, in the face of threats from a changing climate and global pandemics, the idiosyncratic but highly effective scientific knowledge machine must be protected from politicians, commercial interests, and even scientists themselves who seek to open it up, to make it less narrow and more rational—and thus to undermine its devotedly empirical search for truth. Rich with illuminating and often delightfully quirky illustrations, The Knowledge Machine, written in a winningly accessible style that belies the import of its revisionist and groundbreaking concepts, radically reframes much of what we thought we knew about the origins of the modern world.

Seventeenth-century Europe witnessed an extraordinary flowering of discoveries and innovations. This study, beginning with the Dutch-invented telescope of 1608, casts Galileo's discoveries into a global framework. Although the telescope was soon transmitted to China, Mughal India, and the Ottoman Empire, those civilizations did not respond as Europeans did to the new instrument. In Europe, there was an extraordinary burst of innovations in microscopy, human anatomy, optics, pneumatics, electrical studies, and the science of mechanics. Nearly all of those aided the emergence of Newton's revolutionary grand synthesis, which unified terrestrial and celestial physics under the law of universal gravitation. That achievement had immense implications for all aspects of modern science, technology, and economic development. The economic implications are set out in the concluding epilogue. All these unique developments suggest why the West experienced a singular scientific and economic ascendancy of at least four centuries.

This volume includes papers presented during a symposium on the spreading of the scientific revolution outside Western European countries, which was held during the XXth International Congress of History of Science in Liege in 1997. The contributions aim to answer some recent historiographical questions such as the modalities of the spreading of science in different countries, the reception of the new science by different cultures, the kind of changes this reception set in motion, the periodisation in adopting the new scientific knowledge, the structures set up for this adoption. Three geographical areas are presented here: the European countries in the border of the "scientific center", Latin America countries and East Asian regions. The volume constitutes the first attempt at making a synthesis at an international level on the important question of the spreading of the "new science" throughout the world.

The author of the critically acclaimed Worldly Goods presents a thoughtful reassessment of the Renaissance in terms of its influence on the history of science, relating the era's imaginative, artistic endeavors to the creative inspiration behind the scientific discoveries of the period. Reprint. 20,000 first printing.

From Early Astronomy to Our Modern Scientific Worldview

The Good Life in the Scientific Revolution

The Enlightenment and Industrial Revolution

How Humankind Created Science

A New History of the Scientific Revolution

The Spread of the Scientific Revolution in the European Periphery, Latin America, and East Asia

This 1997 book views the substantive achievements of the Middle Ages as they relate to early modern science.

I consider philosophy rather than arts and write not concerning manual but natural powers, and consider chiefly those things which relate to gravity, levity, elastic force, the resistance of fluids, and the like forces, whether attractive or impulsive; and therefore I offer this work as the mathematical principles of philosophy.In the third book I give an example of this in the explication of the System of the World. I derive from celestial phenomena the forces of gravity with which bodies tend to the sun and other planets.

Presents a history of physics, examining the theories and experimental practices of the science.

The #1 New York Times–bestselling author of A Discovery of Witchesexamines the real-life history of the scientific community of Elizabethan London. Travel to the streets, shops, back alleys, and gardens of Elizabethan London, where a boisterous and diverse group of men and women shared a keen interest in the study of nature. These assorted merchants, gardeners, barber-surgeons, midwives, instrument makers, mathematics teachers, engineers, alchemists, and other

experimenters formed a patchwork scientific community whose practices set the stage for the Scientific Revolution. While Francis Bacon has been widely regarded as the father of modern science, scores of his London contemporaries also deserve a share in this distinction. It was their collaborative, yet often contentious, ethos that helped to develop the ideals of modern scientific research. The book examines six particularly fascinating episodes of scientific inquiry and dispute in sixteenth-century London, bringing to life the individuals involved and the challenges they faced. These men and women experimented and invented, argued and competed, waged wars in the press, and struggled to understand the complexities of the natural world. Together their stories illuminate the blind alleys and surprising twists and turns taken as medieval philosophy gave way to the empirical, experimental culture that became a hallmark of the Scientific Revolution. "Elegant and erudite." —Anthony Grafton, American Scientist "A truly wonderful book, deeply researched, full of original material, and exhilarating to read." —John Carey, Sunday Times "Widely accessible." —Ian Archer, Oxford University "Vivid, compelling, and panoramic, this revelatory work will force us to revise everything we thought we knew about Renaissance science." —Adrian Johns, author of The Nature Book

On the Revolutions of Heavenly Spheres

Atoms and Alchemy

Intellectual Curiosity and the Scientific Revolution

The Jewel House

A Global Perspective

The Structure of Scientific Revolutions

The Scientific Revolution Revisited brings Mikuláš Teich back to the great movement of thought and action that transformed European science and society in the seventeenth century. Drawing on a lifetime of scholarly experience in six penetrating chapters, Teich examines the ways of investigating and understanding nature that matured during the late Middle Ages and the Renaissance, charting their progress towards science as we now know it and insisting on the essential interpenetration of such inquiry with its changing social environment. The Scientific Revolution was marked by the global expansion of trade by European powers and by interstate rivalries for a stake in the developing world market, in which advanced medieval China, remarkably, did not participate. It is in the wake of these happenings, in Teich's original retelling, that the Thirty Years War and the Scientific Revolution emerge as products of and factors in an uneven transition in European and world history: from natural philosophy to modern science, feudalism to

capitalism, the late medieval to the early modern period. ??With a narrative that moves from pre-classical thought to the European institutionalisation of science – and a scope that embraces figures both lionised and neglected, such as Nicole Oresme, Francis Bacon, Thomas Hobbes, Isaac Newton, René Descartes, Thaddeus Hagecius, Johann Joachim Becher – The Scientific Revolution Revisited illuminates the social and intellectual sea changes that shaped the modern world.

The life of an eminent scientist during the Scientific Revolution and the ensuing Enlightenment was not easy. Ambitious people were killed in the name of the Catholic Church for their scientific and philosophical works, which were often viewed as heretical.

The Scientific Revolution of the seventeenth century has often been called a decisive turning point in human history. It represents, for good or ill, the birth of modern science and modern ways of viewing the world. In What Galileo Saw, Lawrence Lipking offers a new perspective on how to understand what happened then, arguing that artistic imagination and creativity as much as rational thought played a critical role in creating new visions of science and in shaping stories about eye-opening discoveries in cosmology, natural history, engineering, and the life sciences. When Galileo saw the face of the Moon and the moons of Jupiter, Lipking writes, he had to picture a cosmos that could account for them. Kepler thought his geometry could open a window into the mind of God. Francis Bacon's natural history envisioned an order of things that would replace the illusions of language with solid evidence and transform notions of life and death. Descartes designed a hypothetical "Book of Nature" to explain how everything in the universe was constructed. Thomas Browne reconceived the boundaries of truth and error. Robert Hooke, like Leonardo, was both researcher and artist; his schemes illuminate the microscopic and the macrocosmic. And when Isaac Newton imagined nature as a coherent and comprehensive mathematical system, he redefined the goals of science and the meaning of genius. What Galileo Saw bridges the divide between science and art; it brings together Galileo and Milton, Bacon and Shakespeare. Lipking enters the minds and the workshops where the Scientific Revolution was fashioned, drawing on art, literature, and the history of science to reimagine how perceptions about the world and human life could change so drastically, and change forever.

“ There was no such thing as the Scientific Revolution, and this is a book about it. ” With this provocative and apparently paradoxical claim, Steven Shapin begins his bold, vibrant exploration of the origins of the modern scientific worldview, now updated with a new bibliographic essay featuring the latest scholarship. “ An excellent book. ” —Anthony Gottlieb, New York Times Book Review “ Timely and highly readable. . . . A book which every scientist curious about our predecessors should read. ” —Trevor Pinch, New Scientist “ Shapin's account is informed,

nuanced, and articulated with clarity. . . . This is not to attack or devalue science but to reveal its richness as the human endeavor that it most surely is. . . . Shapin's book is an impressive achievement. " —David C. Lindberg, Science " It's hard to believe that there could be a more accessible, informed or concise account. . . . The Scientific Revolution should be a set text in all the disciplines. And in all the indisciplines, too. " —Adam Phillips, London Review of Books

Descartes, Pascal, Leibniz, and the Cultivation of Virtue

The Cambridge Companion to Science and Religion

Opening Science

What Galileo Saw

Copernicus' Secret

Chymistry and the Experimental Origins of the Scientific Revolution

Galileo Galilei's Sidereus Nuncius is arguably the most dramatic scientific book ever published. It announced new and unexpected phenomena in the heavens, "unheard of through the ages," revealed by a mysterious new instrument. Galileo had ingeniously improved the rudimentary "spyglasses" that appeared in Europe in 1608, and in the autumn of 1609 he pointed his new instrument at the sky, revealing astonishing sights: mountains on the moon, fixed stars invisible to the naked eye, individual stars in the Milky Way, and four moons around the planet Jupiter. These discoveries changed the terms of the debate between geocentric and heliocentric cosmology and helped ensure the eventual acceptance of the Copernican planetary system. Albert Van Helden's beautifully rendered and eminently readable translation is based on the Venice 1610 edition's original Latin text. An introduction, conclusion, and copious notes place the book in its historical and intellectual context, and a new preface, written by Van Helden, highlights recent discoveries in the field, including the detection of a forged copy of Sidereus Nuncius, and new understandings about the political complexities of Galileo's work.

This is a concise but wide-ranging account of all aspects of the Scientific Revolution from astronomy to zoology. The third edition has been thoroughly updated, and some sections revised and extended, to take into account the latest scholarship and research and new developments in historiography.

From the beginning of the Scientific Revolution around the late sixteenth century to its final crystallization in the early eighteenth century, hardly an observational result, an experimental technique, a theory, a mathematical proof, a methodological principle, or the award of recognition and reputation remained unquestioned for long. The essays collected in this book examine the rich texture of debates that comprised the Scientific Revolution from which the modern conception of science emerged. Were controversies marginal episodes, restricted to certain fields, or were they the rule in the majority of scientific domains? To what extent did scientific controversies share a typical pattern, which distinguished them from debates in other fields? Answers to these historical and philosophical questions are sought through a close attention to specific controversies within and across the changing scientific disciplines as well as across the borders of the natural and the human sciences, philosophy, theology, and technology.

Prologue p. ix Acknowledgments p. xv 1 Background to the Problem p. 3 2 British Society and the Scientific Community p. 16 3 Beliefs: Geological, Philosophical, and Religious p. 36 4 The Mystery of Mysteries p. 75 5 Ancestors and Archetypes p. 94 6 On the Eve of the Origin p. 132 7 Charles Darwin and the Origin of Species p. 160 8 After the Origin: Science p. 202 9 After the Origin: Philosophy, Religion, and Politics p. 234 10 Overview and Analysis p. 268 Notes p. 275 Bibliography p. 285 Index p. 312.

The Scientific Revolution

How the Scientific Revolution Began

The Death of Nature

A Captivating Guide to the Emergence of Modern Science During the Early Modern Period, Including Stories of Thinkers Such as Isaac Newton and René Descartes

The Knowledge Machine: How Irrationality Created Modern Science

Ingenious Pursuits

The early modern era produced the Scientific Revolution, which originated our present understanding of the natural world. Concurrently, philosophers established the conceptual foundations of modernity. This rich and comprehensive volume surveys and illuminates the numerous and complicated interconnections between philosophical and scientific thought as both were radically transformed from the late sixteenth to the mid-eighteenth century. The chapters explore reciprocal influences between philosophy and physics, astronomy, mathematics, medicine, and other disciplines, and show how thinkers responded to an immense range of intellectual, material, and institutional influences. The volume offers a unique perspicuity, viewing the entire landscape of early modern philosophy and science, and also marks an epoch in contemporary scholarship, surveying recent contributions and suggesting future investigations for the next generation of scholars and students.

This book explores the historical relations between science and religion and discusses contemporary issues with perspectives from cosmology, evolutionary biology and bioethics.

Cohen's exploration seeks to uncover nothing less than the nature of all scientific revolutions, the stages by which they occur, their time scale, specific criteria for determining whether or not there has been a revolution, and the creative factors in producing a revolutionary new idea.

Three events, which happened all within the same week some ten years ago, set me on the track which the book describes. The first was a reading of Emile Meyerson works in the course of a prolonged research on Einstein's relativity theory, which sent me back to Meyerson's Ident ity and Reality, where I read and reread the striking chapter on "Ir rationality". In my earlier researches into the origins of French Conven tionalism I came to know similar views, all apparently deriving from Emile Boutroux's doctoral thesis of 1874 De fa contingence des lois de la nature and his notes of the 1892-3 course he taught at the Sorbonne De ['idee de fa loi naturelle dans la science et la philosophie contempo raines. But never before was the full effect of the argument so suddenly clear as when I read Meyerson. On the same week I read, by sheer accident, Ernest Moody's two parts paper in the JHIof 1951, "Galileo and Avempace". Put near Meyerson's thesis, what Moody argued was a striking confirmation: it was the sheer irrationality of the Platonic tradition, leading from A vem pace to Galileo, which was the working conceptual force behind the notion of a non-appearing nature, active all the time but always sub merged, as it is embodied in the concept of void and motion in it.

From Copernicus to Newton

The Two Cultures

The History of Science

The Cambridge History of Philosophy of the Scientific Revolution

Sidereus Nuncius, or The Sidereal Messenger

Building the Scientific Revolution

Amid the unrest, dislocation, and uncertainty of seventeenth-century Europe, readers seeking consolation and assurance turned to philosophical and scientific books that offered ways of conquering fears and training the mind—guidance for living a good life. The Good Life in the Scientific Revolution presents a triptych showing how three key early modern scientists, René Descartes, Blaise Pascal, and Gottfried Leibniz, envisioned their new work as useful for cultivating virtue and for pursuing a good life. Their scientific and philosophical innovations stemmed in part from their understanding of mathematics and science as cognitive and spiritual exercises that could create a truer mental and spiritual nobility. In portraying the rich contexts surrounding Descartes’ geometry, Pascal’s arithmetical triangle, and Leibniz’s calculus, Matthew L. Jones argues that this drive for moral therapeutics guided important developments of early modern philosophy and the Scientific Revolution.

Sir Francis Bacon's "Novum Organum" is a treatise meant to adjust the thought and methodology of learning about and understanding science and nature. Learn about the four Idols and the inductive method outlined in this keystone philosophy work. This is now known as the Baconian method.

The title is a reference to Aristotle's work Organon, which was his treatise on logic and syllogism. Ultimately, the Novum Organum is defined as the "New Tool." But, a new tool for what, and why is it 'new'? In this book Bacon demonstrates the use of the scientific method to discover knowledge about the natural world. Many of the examples in this volume concern the nature of heat and energy.

Traces the story of the enigmatic scientist while revealing how he was able to make his pivotal discovery about how the earth revolves around the sun spite of limited technology and the obscure belief systems of his contemporaries, in an account that traces the crucial role played by Copernicus's associate, Georg Joachim Rheticus. 35,000 first printing.

Modern information and communication technologies, together with a cultural upheaval within the research community, have profoundly changed research in nearly every aspect. Ranging from sharing and discussing ideas in social networks for scientists to new collaborative environments and novel publication formats, knowledge creation and dissemination as we know it is experiencing a vigorous shift towards increased transparency, collaboration and accessibility. Many assume that research workflows will change more in the next 20 years than they have in the last 200. This book provides researchers, decision makers, and other scientific stakeholders with a snapshot of the basics, the tools, and the underlying visions that drive the current scientific (r)evolution, often called ‘Open Science.’

Their Religious, Institutional and Intellectual Contexts

A Captivating Guide to the Age of Reason and a Period of Major Industrialization

Revolution in Science

The Scientific Revolution in National Context

The Invention of Science

Beyond the Scientific Revolution

With unprecedented current coverage of the profound changes in the nature and practice of science in sixteenth- and seventeenth-century Europe, this comprehensive reference work addresses the individuals, ideas, and institutions that defined culture in the age when the modern perception of nature, of the universe, and of our place in it is said to have emerged. Covering the historiography of the period, discussions of the Scientific Revolution's impact on its contemporaneous disciplines, and in-depth analyses of the importance of historical context to major developments in the sciences, The Encyclopedia of the Scientific Revolution is an indispensible resource for students and researchers in the history and philosophy of science.

We live in a world made by science. How and when did this happen? This book tells the story of the extraordinary intellectual and cultural revolution that gave birth to modern science, and mounts a major challenge to the prevailing orthodoxy of its history. Before 1492 it was assumed that all significant knowledge was already available; there was no concept of progress; people looked for understanding to the past not the future. This book argues that the discovery of America demonstrated that new knowledge was possible: indeed it introduced the very concept of 'discovery', and opened the way to the invention of science. The first crucial discovery was Tycho Brahe's nova of 1572: proof that there could be change in the heavens. The telescope (1610) rendered the old astronomy obsolete. Torricelli's experiment with the vacuum (1643) led directly to the triumph of the experimental method in the Royal Society of Boyle and Newton. By 1750 Newtonianism was being celebrated throughout Europe. The new science did not consist simply of new discoveries, or new methods. It relied on a new understanding of what knowledge might be, and with this came a new language: discovery, progress, facts, experiments, hypotheses, theories, laws of nature - almost all these terms existed before 1492, but their meanings were radically transformed so they

became tools with which to think scientifically. We all now speak this language of science, which was invented during the Scientific Revolution. The new culture had its martyrs (Bruno, Galileo), its heroes (Kepler, Boyle), its propagandists (Voltaire, Diderot), and its patient labourers (Gilbert, Hooke). It led to a new rationalism, killing off alchemy, astrology, and belief in witchcraft. It led to the invention of the steam engine and to the first Industrial Revolution. David Wootton's landmark book changes our understanding of how this great transformation came about, and of what science is.

Examines the effects of the 'Scientific Revolution' on scientific thinking and describes the effects of national and regional factors.

Ancient cultures have been looking up at the stars for thousands of years, wondering about their place in the universe. What were those glowing spots in the black cover of night? Just how far away was the moon?

Imagining the Scientific Revolution

Sir Isaac Newton's Mathematical Principles of Natural Philosophy and His System of the World

The Oxford Handbook of the History of Physics

Science Red in Tooth and Claw

The Scientific Revolution Revisited

The Scientific Revolution Revisited brings Mikulás Teich back to the great movement of thought and action that transformed European science and society in the seventeenth century. Drawing on a lifetime of scholarly experience in six penetrating chapters, Teich examines the ways of investigating and understanding nature that matured during the late Middle Ages and the Renaissance, charting their progress towards science as we now know it and insisting on the essential interpenetration of such inquiry with its changing social environment. The Scientific Revolution was marked by the global expansion of trade by European powers and by interstate rivalries for a stake in the developing world market, in which advanced medieval China, remarkably, did not participate. It is in the wake of these happenings, in Teich's original retelling, that the Thirty Years War and the Scientific Revolution emerge as products of and factors in an uneven transition in European and world history: from natural philosophy to modern science, feudalism to capitalism, the late medieval to the early modern period. With a narrative that moves from pre-classical thought to the European institutionalisation of science - and a scope that embraces figures both lionised and neglected, such as Nicole Oresme, Francis Bacon, Thomas Hobbes, Isaac Newton, René Descartes, Thaddeus Hagecius, Johann Joachim Becher - The Scientific Revolution Revisited illuminates the social and intellectual sea changes that shaped the modern world.

Lawrence M. Principe takes a fresh approach to the story of the scientific revolution, emphasising the historical context of the society and its world view at the time. From astronomy to alchemy and medicine to geology, he tells this fascinating story from the perspective of the historical characters involved.

UPDATED 40TH ANNIVERSARY EDITION WITH 2020 PREFACE An examination of the Scientific Revolution that shows how the mechanistic world view of modern science has sanctioned the exploitation of nature, unrestrained commercial expansion, and a

new socioeconomic order that subordinates women.

In this first book-length historiographical study of the Scientific Revolution, H. Floris Cohen examines the body of work on the intellectual, social, and cultural origins of early modern science. Cohen critically surveys a wide range of scholarship since the nineteenth century, offering new perspectives on how the Scientific Revolution changed forever the way we understand the natural world and our place in it. Cohen's discussions range from scholarly interpretations of Galileo, Kepler, and Newton, to the question of why the Scientific Revolution took place in seventeenth-century Western Europe, rather than in ancient Greece, China, or the Islamic world. Cohen contends that the emergence of early modern science was essential to the rise of the modern world, in the way it fostered advances in technology. A valuable entrée to the literature on the Scientific Revolution, this book assesses both a controversial body of scholarship, and contributes to understanding how modern science came into the world.

Newton□s Physics and the Conceptual Structure of the Scientific Revolution

The Foundations of Modern Science in the Middle Ages

The Scientific Revolution and the Origins of Modern Science

Third Culture

The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing

Novum Organum

Since the Enlightenment, alchemy has been viewed as a sort of antiscience, disparaged by many historians as a form of lunacy that impeded the development of rational chemistry. But in Atoms and Alchemy, William R. Newman—a historian widely credited for reviving recent interest in alchemy—exposes the speciousness of these views and challenges widely held beliefs about the origins of the Scientific Revolution. Tracing the alchemical roots of Robert Boyle’s famous mechanical philosophy, Newman shows that alchemy contributed to the mechanization of nature, a movement that lay at the very heart of scientific discovery. Boyle and his predecessors—figures like the mysterious medieval Geber or the Lutheran professor Daniel Sennert—provided convincing experimental proof that matter is made up of enduring particles at the microlevel. At the same time, Newman argues that alchemists created the operational criterion of an “atomic” element as the last point of analysis, thereby contributing a key feature to the development of later chemistry. Atomsand Alchemy thus provokes a refreshing debate about the origins of modern science and will be welcomed—and deliberated—by all who are interested in the development of scientific theory and practice.

Today we have countless scientific laws and principles that help explain our observations of the natural world. However, this was not always the case. Although individuals have long sought to understand their surroundings, it was not until around 2500 BCE that scientific activity began to assume a more prominent place in civilizations around the world. The journey from early investigation through the scientific revolution to the present day is chronicled in this absorbing volume. Readers will learn how religion helped fuel early studies in astronomy, how Stonehenge is related to the Pythagorean theorem, how the development of the scientific method affected the various branches of science, the implications of the “God particle,” and much more.

The importance of science and technology and future of education and research are just some of the subjects discussed here.