

## Philosophy Of Science An Historical Anthology

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Integrated History and Philosophy of Science  
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### Integrating History and Philosophy of Science

History and Philosophy of Science and Technology is a component of Encyclopedia of Physical Sciences, Engineering and Technology Resources in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on History and Philosophy of Science and Technology in four volumes covers several topics such as: Introduction to the Philosophy of Science; The Nature and Structure of Scientific Theories Natural Science; A Short History of Molecular Biology; The Structure of the Darwinian Argument In The Origin of Species; History of Measurement Theory; Episodes of XX Century Cosmology: A Historical Approach; Philosophy of Economics; Social Sciences: Historical And Philosophical Overview of Methods And Goals; Introduction to Ethics of Science and Technology; The Ethics of Science and Technology; The Control of Nature and the Origins of The Dichotomy Between Fact And Value; Science and Empires: The Geo-Epistemic Location of Knowledge; Science and Religion; Scientific Knowledge and Religious Knowledge - Significant Epistemological Reference Points; Thing Called Philosophy of Technology; Transitions from Function-Oriented To Effect-Oriented Technologies. Some Thought on the Nature of Modern Technology; Technical Agency and Sources of Technological Pessimism These four volumes are aimed at a broad spectrum of audiences: University and College Students, Educators and Research Personnel.

### General Philosophy of Science: Focal Issues

This anthology of selections from the works of noted philosophers affords the student an immediate contact with the unique historical background of the philosophy of science. The selections, many of which have not been readily accessible, follow the development of the philosophy of science from 1786 to 1927. Each selection is preceded by a brief introduction by the editor designed to familiarize the reader with a particular philosopher and provide insights into his work. Joseph J. Kockelmans divides the selections into several sections. Part 1, from 1786-1850, includes chapters by Immanuel Kant, on the metaphysical foundations of natural science, John Frederick William Herschel, on experience and the analysis of phenomena, William Whewell, on the nature and conditions of inductive science, and John Stuart Mill, on induction and the law of universal causation; part 2, from 1870-1899, includes chapters by Hermann Von Helmholtz, on the origin and significance of geometrical axioms, William Stanley Jevons, on the philosophy of inductive inference, John Bernard Stallo, on the kinetic theory of gasses and the conditions of the validity of scientific hypotheses, Ernst Mach, on the economical nature of physical inquiry, Karl Pearson, on perceptual and conceptual space, Emile Boutroux, on mechanical laws, Heinrich Hertz, on the appropriateness, correctness, and permissibility of scientific theories, and Ludwig Boltzmann, on the fundamental principles and basic equations of mechanics. The third part, covering the first decade of the twentieth century, includes chapters by Henri Jules Poincare, on science and reality, Charles Peirce, on Induction, Pierre Marie Duhem, on the laws of physics, William Ostwald, on energetism and mechanics, Emile Meyerson, on identity of thought and nature as the final goal of science, Ernst Cassirer, on functional concepts of natural science; part 4, from 1910-1927, includes chapters by Charles Dunbar Broad, on phenomenalism, Alfred North Whitehead, on time, space, and material, Bertrand Russell, on the world of physics and the world of sense, Norman Robert Cambbell, on the meaning of science, Moritz Schlick, on basic issues of the philosophy of natural science, and Percy Williams Bridgman, on the concepts of space, time, and causality. Philosophy of Science provides a concise single volume text to the discipline and enables students to understand and evaluate the various trends in our contemporary philosophy of science. Joseph J. Kockelmans is professor emeritus of philosophy at the Pennsylvania State University.

### **Integrated History and Philosophy of Science**

First Published in 1970. Routledge is an imprint of Taylor & Francis, an informa company.

### **An Introduction to the Philosophy of Science**

Though the publication of Kuhn's Structure of Scientific Revolutions seemed to herald the advent of a unified study of the history and philosophy of science, it is a hard fact that history of science and philosophy of science have increasingly grown apart. Recently, however, there has been a series of workshops on both sides of the Atlantic (called '&HPS') intended to bring historians and philosophers of science together to discuss new integrative approaches. This is therefore an especially appropriate time to explore the problems with and prospects for integrating history and philosophy of science. The original essays in this volume, all from specialists in the history of science or philosophy of science, offer such an exploration from a wide variety of perspectives. The volume combines general reflections on the current state of history and philosophy of science with studies of the relation between the two disciplines in specific historical and scientific cases.

## **The Role of Theology in the History and Philosophy of Science**

This collection addresses metaphysical issues at the intersection between philosophy and science. A unique feature is the way in which it is guided both by history of philosophy, by interaction between philosophy and science, and by methodological awareness. In asking how metaphysics is possible in an age of science, the contributors draw on philosophical tools provided by three great thinkers who were fully conversant with and actively engaged with the sciences of their day: Kant, Husserl, and Frege. Part I sets out frameworks for scientifically informed metaphysics in accordance with the meta-metaphysics outlined by these three self-reflective philosophers. Part II explores the domain for co-existent metaphysics and science. Constraints on ambitious critical metaphysics are laid down in close consideration of logic, meta-theory, and specific conditions for science. Part III exemplifies the role of language and science in contemporary metaphysics. Quine's pursuit of truth is analysed; Cantor's absolute infinitude is reconstrued in modal terms; and sense is made of Weyl's take on the relationship between mathematics and empirical aspects of physics. With chapters by leading scholars, *Metametaphysics and the Sciences* is an in-depth resource for researchers and advanced students working within metaphysics, philosophy of science, and the history of philosophy.

## **Science Teaching**

In *The Philosophical Structure of Historical Explanation*, Paul A. Roth resolves disputes persisting since the nineteenth century about the scientific status of history. He does this by showing why historical explanations must take the form of a narrative, making their logic explicit, and revealing how the rational evaluation of narrative explanation becomes possible. Roth situates narrative explanations within a naturalistic framework and develops a nonrealist (irrealist) metaphysics and epistemology of history—arguing that there exists no one fixed past, but many pasts. The book includes a novel reading of Thomas S. Kuhn's *The Structure of Scientific Revolutions*, showing how it offers a narrative explanation of theory change in science. This book will be of interest to researchers in historiography, philosophy of history, philosophy of science, philosophy of social science, and epistemology.

## **Greek Studies in the Philosophy and History of Science**

This bestselling book traces the history of science through its continually changing place in society and explores the links between the pursuit of knowledge and the desire to make that knowledge useful.

## **Apologia Pro Tychone Contra Ursum**

Philosophers have never been reluctant to analyse methodological problems which arise from the practice of other disciplines. The results of these analyses become provinces within philosophy, each being a second-order commentary on a first-order subject. Philosophy of science and history of science are both interpretations of scientific practice. This book is concerned with the nature of the relationship between these

two disciplines. There are various possibilities. Philosophy of science and history of science may be mutually exclusive, interdependent, or related by inclusion. Much depends on whether philosophy of science is taken to be a prescriptive or a descriptive discipline. There has been a venerable tradition of prescriptive philosophy of science, but recently a few investigators have pursued a descriptive alternative. Descriptive philosophy of science is the more modest alternative. Its practitioners nevertheless have made important contributions to our understanding of those activities that comprise science.

## **Worldviews**

To commemorate the 50th anniversary of his passing (in 2014), this special book features studies on Alexandre Koyré (1892–1964), one of the most influential historians of science of the 20th century, who re-evaluated prevalent thinking on the history and philosophy of science. In particular, it explores Koyré's intellectual matrix and heritage within interdisciplinary fields of historical, epistemological and philosophical scientific thought. Koyré is rightly noted as both a versatile historian on the birth and development of modern science and for his interest in philosophical questions on the nature of scientific knowledge. In the 1940s and 1950s his activities in the United States established a crucial bridge between the European historical tradition of science studies and the American academic environments, and an entire generation of historians of science grew up under his direct influence. The book brings together contributions from leading experts in the field, and offers much-needed insights into the subject from historical, nature of science, and philosophical perspectives. It provides an absorbing and revealing read for historians, philosophers and scientists alike.

## **Essays in the History and Philosophy of Science**

Nicholas Jardine offers here an edition and the first translation into English of Johannes Kepler's *A Defence of Tycho against Ursus*. He accompanies this with essays on the provenance of the treatise - the circumstances which provoked Kepler to write it, an analysis of its strategy, style and historical sources and of the contents of Ursus' *Treatise on Astronomical Hypotheses* to which Kepler was replying. Dr Jardine also provides three extended interpretive essays on the intrinsic interest and historical significance of the work.

## **Philosophy of Science**

The *History and Philosophy of Science: A Reader* brings together seminal texts from antiquity to the end of the nineteenth century and makes them accessible in one volume for the first time. With readings from Aristotle, Aquinas, Copernicus, Galileo, Descartes, Newton, Lavoisier, Linnaeus, Darwin, Faraday, and Maxwell, it analyses and discusses major classical, medieval and modern texts and figures from the natural sciences. Grouped by topic to clarify the development of methods and disciplines and the unification of theories, each section includes an introduction, suggestions for further reading and end-of-section discussion questions, allowing students to develop the skills needed to: § read, interpret, and critically engage with central problems and ideas from the history and philosophy of science § understand and evaluate

scientific material found in a wide variety of professional and popular settings § appreciate the social and cultural context in which scientific ideas emerge § identify the roles that mathematics plays in scientific inquiry Featuring primary sources in all the core scientific fields - astronomy, physics, chemistry, and the life sciences - The History and Philosophy of Science: A Reader is ideal for students looking to better understand the origins of natural science and the questions asked throughout its history. By taking a thematic approach to introduce influential assumptions, methods and answers, this reader illustrates the implications of an impressive range of values and ideas across the history and philosophy of Western science.

### **History as a Science: The Philosophy of R.G. Collingwood**

Aimed at students from all disciplines,

### **Metametaphysics and the Sciences**

How much faith should we place in what scientists tell us? Is it possible for scientific knowledge to be fully "objective?" What, really, can be defined as science? In the second edition of this Very Short Introduction, Samir Okasha explores the main themes and theories of contemporary philosophy of science, and investigates fascinating, challenging questions such as these. Starting at the very beginning, with a concise overview of the history of science, Okasha examines the nature of fundamental practices such as reasoning, causation, and explanation. Looking at scientific revolutions and the issue of scientific change, he asks whether there is a discernible pattern to the way scientific ideas change over time, and discusses realist versus anti-realist attitudes towards science. He finishes by considering science today, and the social and ethical philosophical questions surrounding modern science. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

### **Philosophy of Science**

The articles in this collection were all selected from the first five volumes of the Journal of Dialectics of Nature published by the Chinese Academy of Sciences between 1979 and 1985. The Journal was established in 1979 as a comprehensive theoretical publication concerning the history, philosophy and sociology of the natural sciences. It began publication as a response to China's reform, particularly the policy of opening to the outside world. Chinese scholars began to undertake distinctive, original research in these fields. This collection provides a cross-section of their efforts during the initial phase. To enable western scholars to understand the historical process of this change in Chinese academics, Yu Guangyuan's 'On the Emancipation of the Mind' and Xu Liangying's 'Essay on the Role of Science and Democracy in Society' have been included in this collection. Three of the papers included on the philosophy of science are discussions of philosophical

issues in cosmology and biology by scientists themselves. The remaining four are written by philosophers of science and discuss information and cognition, homeostasis and Chinese traditional medicine, the I Ching (Yi Jing) and mathematics, etc. Papers have been selected on the history of both classical and modern science and technology, the most distinctive of which are macro-comparisons of the development of science in China and the west. Some papers discuss the issue of the demarcation of periods in the history of science, the history of ancient Chinese mathematics, astronomy, metallurgy, machinery, medicine, etc. Others discuss the history of modern physics and biology, the history of historiography of science in China and the history of regional development of Chinese science and technology. Also included are biographies of three post-eighteenth-century Chinese scholars, Li Shanlan (1811-1882), Hua Hengfang (1833–1902), and Cai Yuanpei (1868–1940), who contributed greatly to the introduction of western science and scholarship to China. In addition, three short papers have been included introducing the interactions between Chinese scholars and three great western scientists, Niels Bohr, Norbert Wiener, and Robert A. Millikan.

## **Historical and Philosophical Perspectives of Science**

A masterful survey of the history of Marxist philosophy of science. Now with a new afterword. Skillfully deploying a large cast of characters, Sheehan retraces the development of Marxist philosophy of science through detailed and highly readable accounts of the debates that have characterized it. Approaching Marxism from the perspective of the philosophy of science, Sheehan shows how Marx's and Engel's ideas on the development and structure of natural science had a crucial impact on the work of early twentieth-century natural philosophers, historians of science, and natural scientists. From the ideas of Marx and Engels, those of the Marxist theoreticians of the Second International to the debates within Russian Marxism up to World War II, Sheehan masterfully surveys the history of marxist philosophy of science, concluding with a close analysis of the development of the debate among non-Soviet Marxists, placing particular emphasis on the contributions of leading British Marxists in the 1930s.

## **An Introduction to the History and Philosophy of Science**

In this essay, Joshua Moritz shows how the conceptual landscape of theology been shaped by the history and philosophy of science, even as theology has informed the history and philosophical foundations of the natural sciences.

## **HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY -Volume IV**

"Here, for the first time in English, are the philosophical essays - including the first statement of the "Duhem Thesis" - that formed the basis for Aim and Structure of Physical Theory, together with new translations of the historiographical essays presenting the equally celebrated "Continuity Thesis" by Pierre Duhem (1861-1916), a founding figure of the history and philosophy of science. Prefaced by an introduction on Duhem's intellectual development and continuing significance, here as well are important subsequent essays in which Duhem elaborated key

concepts and critiqued such contemporaries as Henri Poincare and Ernst Mach. Together, these works offer a lively picture of the state of science at the turn of the century while addressing methodological issues that remain at the center of debate today."--BOOK JACKET. Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

## Particles and Waves

PRAISE FOR PREVIOUS EDITIONS "This is a brilliantly clear introduction (and indeed reframing) of the history and philosophy of science in terms of worldviews and their elements.... In addition, the book is incredibly well-informed from both a scientific and philosophical angle. Highly recommended." Scientific and Medical Network "Unlike many other introductions to philosophy of science, DeWitt's book is at once historically informative and philosophically thorough and rigorous. Chapter notes, suggested readings, and references enhance its value." Choice "Written in clear and comprehensible prose and supplemented by effective diagrams and examples, Worldviews is an ideal text for anyone new to the history and philosophy of science. As the reader will come to find out, DeWitt is a gifted writer with the unique ability to break down complex and technical concepts into digestible parts, making Worldviews a welcoming and not overwhelming book for the introductory reader." History and Philosophy of the Life Sciences, vol. 28(2) Now in its third edition, Worldviews: An Introduction to the History and Philosophy of Science strengthens its reputation as the most accessible and teachable introduction to the history and philosophy of science on the market. Geared toward engaging undergraduates and those approaching the history and philosophy of science for the first time, this intellectually-provocative volume takes advantage of its author's extensive teaching experience, parsing complex ideas using straightforward and sensible examples drawn from the physical sciences. Building on the foundations which earned the book its critical acclaim, author Richard DeWitt considers fundamental issues in the philosophy of science through the historical worldviews that influenced them, charting the evolution of Western science through the rise and fall of dominant systems of thought. Chapters have been updated to include discussion of recent findings in quantum theory, general relativity, and evolutionary theory, and two new chapters exclusive to the third edition enrich its engagement with radical developments in contemporary science. At a time in modern history when the nature of truth, fact, and reality seem increasingly controversial, the third edition of Worldviews presents complex concepts with clarity and verve, and prepares inquisitive minds to engage critically with some of the most exciting questions in the philosophy of science.

## The Past, Present, and Future of Integrated History and Philosophy of Science

For much of the twentieth century, French intellectual life was dominated by theoreticians and historians of mentalité. Traditionally, the study of the mind and of its limits and capabilities was the domain of philosophy, however in the first decades of the twentieth century practitioners of the emergent human and social sciences were increasingly competing with philosophers in this field: ethnologists, sociologists, psychologists and historians of science were all claiming to study 'how people think'. Scholars, including Gaston Bachelard, Georges Canguilhem, Léon Brunschvicg, Lucien Lévy-Bruhl, Lucien Febvre, Abel Rey, Alexandre Koyré and Hélène Metzger were all investigating the mind historically and participating in shared research projects. Yet, as they have since been appropriated by the different disciplines, literature

on their findings has so far failed to recognise the connections between their research and their importance in intellectual history. In this exemplary book, Cristina Chimisso reconstructs the world of these intellectuals and the key debates in the philosophy of mind, particularly between those who studied specific mentalities by employing prevalently historical and philological methods, and those who thought it possible to write a history of the mind, outlining the evolution of ways of thinking that had produced the modern mentality. Dr Chimisso situates the key French scholars in their historical context and shows how their ideas and agendas were indissolubly linked with their social and institutional positions, such as their political and religious allegiances, their status in academia, and their familial situation. The author employs a vast range of original research, using philosophical and scientific texts as well as archive documents, correspondence and seminar minutes from the period covered, to recreate the milieu in which these relatively neglected scholars made advances in the history of philosophy and science, and produced ideas that would greatly influence later intellectuals such as Foucault, Derrida and Bourdieu. This book will appeal to historians of science and philosophy, particularly Continental philosophy, and those with interest in the history of ideas and the historiography of the disciplines of the social sciences.

### **Science and Hypothesis**

By combining excerpts from key historical writings with commentary by experts, *Philosophy of Science: An Historical Anthology* provides a comprehensive history of the philosophy of science from ancient to modern times. Provides a comprehensive history of the philosophy of science, from antiquity up to the 20th century Includes extensive commentary by scholars putting the selected writings in historical context and pointing out their interconnections Covers areas rarely seen in philosophy of science texts, including the philosophical dimensions of biology, chemistry, and geology Designed to be accessible to both undergraduates and graduate students

### **Philosophy of Science**

This book explores central philosophical concepts, issues, and debates in the philosophy of science, both historical and contemporary.

### **Philosophy of Science**

First published in 1993. Routledge is an imprint of Taylor & Francis, an informa company.

### **Current Controversies in Philosophy of Science**

This book consists of a collection of essays written between 1965 and 1981. Some have been published elsewhere; others appear here for the first time. Although dealing with different figures and different periods, they have a common theme: all are concerned with examining how the method of hypothesis came to be the ruling orthodoxy in the philosophy of science and the quasi-official methodology of the scientific

community. It might have been otherwise. Barely three centuries ago, hypothetico deduction was in both disfavor and disarray. Numerous rival methods for scientific inquiry - including eliminative and enumerative induction, analogy and derivation from first principles - were widely touted. The method of hypothesis, known since antiquity, found few proponents between 1700 and 1850. During the last century, of course, that ordering has been inverted and - despite an almost universal acknowledgement of its weaknesses - the method of hypothesis (usually under such descriptions as 'hypothetico deduction' or 'conjectures and refutations') has become the orthodoxy of the 20th century. Behind the waxing and waning of the method of hypothesis, embedded within the vicissitudes of its fortunes, there is a fascinating story to be told. It is a story that forms an integral part of modern science and its philosophy.

## **Philosophy in Science**

The author argues that science teaching can be improved if the science curriculum includes the historical and philosophical dimensions of topics. He outlines the history of contextual approaches and explores curriculum developments that address questions about the nature of science.

## **Marxism and the Philosophy of Science**

Integrated History and Philosophy of Science (iHPS) is commonly understood as the study of science from a combined historical and philosophical perspective. Yet, since its gradual formation as a research field, the question of how to suitably integrate both perspectives remains open. This volume presents cutting edge research from junior iHPS scholars, and in doing so provides a snapshot of current developments within the field, explores the connection between iHPS and other academic disciplines, and demonstrates some of the topics that are attracting the attention of scholars who will help define the future of iHPS.

## **Writing the History of the Mind**

Our Greek colleagues, in Greece and abroad, must know (indeed they do know) how pleasant it is to recognize the renaissance of the philosophy of science among them with this fine collection. Classical and modern, technical and humane, historical and logical, admirably original and respectfully traditional, these essays will deserve close study by philosophical readers throughout the world. Classical scholars and historians of science likewise will be stimulated, and the historians of ancient as well as modern philosophers too. Reviewers might note one or more of the contributions as of special interest, or as subject to critical wrestling (that ancient tribute); we will simply congratulate Pantelis Nicolacopoulos for assembling the essays and presenting the book, and we thank the contributors for their works and for their happy agreement to let their writings appear in this book. R. S. C. xi INTRODUCTION Neither philosophy nor science is new to Greece, but philosophy of science is. There are broader (socio-historical) and more specific (academic) reasons that explain, to a satisfactory degree, both the under-development of philosophy and history of science in Greece until recently and its recent development to international

standards. It is, perhaps, not easy to have in mind the fact that the modern Greek State is only 160 years old (during quite a period of which it was considerably smaller than it is today, its present territory having been settled after World War II).

## History of Philosophy of Science

This is a collection of papers on philosophy of science, conceptual history of science, and sociology of science written by Taiwanese scholars. It is perhaps one of the best, written by Taiwanese, in all Chinese-speaking societies. Some works in it show Orientalists study topics that are typically Western philosophy of science. Others show how traditional topics in the history of Chinese science (mathematics, optics, and geology) could be studied with high sensitivity to the philosophy and sociology of science. It also touches upon issues of the 'autonomous' development of social sciences in Taiwan, a society whose academic researches are greatly influenced by the West. This collection will prove stimulating and valuable to general and scholarly readers alike who are interested in philosophy and history of science, especially as related to East Asia and the West. The book will interest scholars in philosophy of science, philosophy of language and psychology, studies of philosophy of science in the third world, history of Chinese science, history of science in East Asia, and history of mathematics.

## The History and Philosophy of Science

1. 1. COLLINGWOOD'S RECEPTION Collingwood's scholarly reputation is a complicated and variegated affair. For one has not only to make a distinction between his reputation during his life and after his premature death in 1943, but also between his reputation as a philosopher and as an archaeologist and historian. Collingwood himself considered philosophy as his primary occupation and his work in archaeology and history as that of an amateur. This work, however, reached the highest standards and his contributions to archaeology and history have always been appreciated accordingly. Though Collingwood's reputation as the main expert on Roman Britain in the period between the two wars remains unchallenged, modern developments in this field have inevitably superseded his contributions and made them primarily voices from a past period. Philosophy was the other half of Collingwood's scholarly life. In his own thinking there was always a close relationship between philosophy and archaeological and historical practice. His interpreters have not always recognized this connection. I have met archaeologists who were surprised to hear that Collingwood was a philosopher as well, who either did not know that he had been a practising and philosophers archaeologist and historian, or thought it no more than a private hobby. Collingwood's reputation as a philosopher was very different from the one he gained in archaeology and history. For in the philosophical climate at Oxford between the wars he was always an isolated figure.

## The Cambridge History of Philosophy, 1945-2015

This volume brings together eleven essays by the distinguished philosopher of science, Peter Achinstein. The unifying theme is the nature of

the philosophical problems surrounding the postulation of unobservable entities such as light waves, molecules, and electrons. How, if at all, is it possible to confirm scientific hypotheses about "unobservables"? Achinstein examines this question as it arose in actual scientific practice in three nineteenth-century episodes: the debate between particle and wave theorists of light, Maxwell's kinetic theory of gases, and J.J. Thomson's discovery of the electron. The book contains three parts, each devoted to one of these topics, beginning with an essay presenting the historical background of the episode and an introduction to the philosophical issues. There is an illuminating evaluation of various scientific methodologies, including hypothetico-deductivism, inductivism, and the method of independent warrant which combines features of the first two. Achinstein assesses the philosophical validity of both nineteenth-century and modern answers to questions about unobservables, and presents and defends his own solutions.

### **The Philosophical Structure of Historical Explanation**

Scientists use concepts and principles that are partly specific for their subject matter, but they also share part of them with colleagues working in different fields. Compare the biological notion of a 'natural kind' with the general notion of 'confirmation' of a hypothesis by certain evidence. Or compare the physical principle of the 'conservation of energy' and the general principle of 'the unity of science'. Scientists agree that all such notions and principles aren't as crystal clear as one might wish. An important task of the philosophy of the special sciences, such as philosophy of physics, of biology and of economics, to mention only a few of the many flourishing examples, is the clarification of such subject specific concepts and principles. Similarly, an important task of 'general' philosophy of science is the clarification of concepts like 'confirmation' and principles like 'the unity of science'. It is evident that clarification of concepts and principles only makes sense if one tries to do justice, as much as possible, to the actual use of these notions by scientists, without however following this use slavishly. That is, occasionally a philosopher may have good reasons for suggesting to scientists that they should deviate from a standard use. Frequently, this amounts to a plea for differentiation in order to stop debates at cross-purposes due to the conflation of different meanings. While the special volumes of the series of Handbooks of the Philosophy of Science address topics relative to a specific discipline, this general volume deals with focal issues of a general nature. After an editorial introduction about the dominant method of clarifying concepts and principles in philosophy of science, called explication, the first five chapters deal with the following subjects. Laws, theories, and research programs as units of empirical knowledge (Theo Kuipers), various past and contemporary perspectives on explanation (Stathis Psillos), the evaluation of theories in terms of their virtues (Ilkka Niiniluoto), and the role of experiments in the natural sciences, notably physics and biology (Allan Franklin), and their role in the social sciences, notably economics (Wenceslao Gonzalez). In the subsequent three chapters there is even more attention to various positions and methods that philosophers of science and scientists may favor: ontological, epistemological, and methodological positions (James Ladyman), reduction, integration, and the unity of science as aims in the sciences and the humanities (William Bechtel and Andrew Hamilton), and logical, historical and computational approaches to the philosophy of science (Atocha Aliseda and Donald Gillies). The volume concludes with the much debated question of demarcating science from nonscience (Martin Mahner) and the rich European-American history of the philosophy of science in the 20th century (Friedrich Stadler). Comprehensive coverage of the philosophy of science written by leading philosophers in this field Clear style of writing for an interdisciplinary audience No specific pre-

knowledge required

## **Philosophy, Science, and History**

The traditional topics of the "philosophy of nature" — space, time, causality, the structure of the universe — are overwhelmingly present in our modern scientific theories. This book traces the complex paths that discussion of these topics has followed, from Plato and Aristotle, through Descartes, Leibniz, Kant and other great thinkers, right up to the relativistic cosmologies and the grand unified theories of contemporary science. In the light of this historical development, it becomes clear that modern science gives us not only a technological power over the world, but also a deeper understanding of physical reality. In this sense, science could be regarded as an heir to the traditional "philosophy of nature". Moreover, the reader will learn why science itself deserves to be the subject of philosophical reflection.

## **A History of Science in Society**

Philosophy of Science: An Anthology assembles some of the finest papers in the philosophy of science since 1945, showcasing enduring classics alongside important and innovative recent work. Introductions by the editor highlight connections between selections, and contextualize the articles. Nine sections address topics at the heart of philosophy of science, including realism and the character of scientific theories, scientific explanations and laws of nature, singular causation, and the metaphysical implications of modern physics. Provides an authoritative and accessible overview of the field.

## **Chinese Studies in the History and Philosophy of Science and Technology**

## **The History and Philosophy of Social Science**

This volume includes recent contributions to the philosophy of science from a historical point of view and of the highest topicality: the range of the topics covers all fields in the philosophy of the science provided by authors from around the world focusing on ancient, modern and contemporary periods in the development of the science philosophy. This proceedings is for the scientific community and students at graduate level as well as postdocs in this interdisciplinary field of research.

## **Philosophy and Conceptual History of Science in Taiwan**

Philosophy, Science, and History: A Guide and Reader is a compact overview of the history and philosophy of science that aims to introduce students to the groundwork of the field, and to stimulate innovative research. The general introduction focuses on scientific theory change,

assessment, discovery, and pursuit. Part I of the Reader begins with classic texts in the history of logical empiricism, including Reichenbach's discovery-justification distinction. With careful reference to Kuhn's analysis of scientific revolutions, the section provides key texts analyzing the relationship of HOPOS to the history of science, including texts by Santayana, Rudwick, and Shapin and Schaffer. Part II provides texts illuminating central debates in the history of science and its philosophy. These include the history of natural philosophy (Descartes, Newton, Leibniz, Kant, Hume, and du Châtelet in a new translation); induction and the logic of discovery (including the Mill-Whewell debate, Duhem, and Hanson); and catastrophism versus uniformitarianism in natural history (Playfair on Hutton and Lyell; de Buffon, Cuvier, and Darwin). The editor's introductions to each section provide a broader perspective informed by contemporary research in each area, including related topics. Each introduction furnishes proposals, including thematic bibliographies, for innovative research questions and projects in the classroom and in the field.

### **Philosophy of Science and Historical Enquiry**

Updated throughout and with three entirely new chapters, *Worldviews: An Introduction to the History and Philosophy of Science*, Second Edition furthers its reputation as the definitive introductory text on the historical developments and philosophical issues that inform our scientific view of the world around us. Represents an innovative introduction to the history and philosophy of science, designed especially for those coming to the subject for the first time Updated new edition features the addition of chapters focusing on scientific laws, evolutionary theory, and implications of evolution Covers the key historical developments and philosophical themes that have impacted our scientific view of the world around us Analyzes the transitions from the Aristotelian worldview to the Newtonian worldview to a new and currently developing worldview Explores challenges to the Western scientific worldview brought on by recent discoveries

### **History of Science and Philosophy of Science**

John Losee provides a balanced and engaging survey of the development of views about scientific method. Ideal for those coming to the subject for the first time, this fully updated new edition incorporates discussion on contemporary debates, including philosophy of biology, normative naturalism, theory appraisal, experimental practice, and scientific realism. Concise profiles of the major philosophers discussed within the text are provided, including Aristotle, Galileo, Newton, Whewell, Hempel, and Kuhn.

### **Hypotheses and Perspectives in the History and Philosophy of Science**

This landmark achievement in philosophical scholarship brings together leading experts from the diverse traditions of Western philosophy in a common quest to illuminate and explain the most important philosophical developments since the Second World War. Focusing particularly (but not exclusively) on those insights and movements that most profoundly shaped the English-speaking philosophical world, this volume bridges the traditional divide between 'analytic' and 'Continental' philosophy while also reaching beyond it. The result is an authoritative guide

to the most important advances and transformations that shaped philosophy during this tumultuous and fascinating period of history, developments that continue to shape the field today. It will be of interest to students and scholars of contemporary philosophy of all levels and will prove indispensable for any serious philosophical collection.

## **Worldviews**

This book features papers on the history and philosophy of science. It also includes related reviews of recent research literature on Rudolf Carnap, Eino Kaila, Ernst Mach, and Otto Neurath. The central idea behind this volume is that this distinctive field is both historical and philosophical at the same time. Good history and philosophy of science is not just history of science into which some philosophy of science may enter. On the other hand, it is neither philosophy of science into which some history of science may enter. The founding insight of this modern research discipline is that history and philosophy have a special affinity and one can effectively advance both simultaneously. The selection of contributions collected in this volume are good examples and best practices for these claims. In addition, it includes illuminating case studies. It will appeal to scholars in the history of and philosophy of science, especially history and philosophy of physics and biology, as well as economics, extended evolution, and the history of knowledge.

## **A Historical Introduction to the Philosophy of Science**

Current Controversies in Philosophy of Science asks twelve philosophers to debate six questions that are driving contemporary work in this area of philosophy. The questions are: I. Are Boltzmann Brains Bad? II. Does Mathematical Explanation Require Mathematical Truth? III. Does Quantum Mechanics Suggest Spacetime is Nonfundamental? IV. Is Evolution Fundamental When It Comes to Defining Biological Ontology? V. Is Chance Ontologically Fundamental? VI. Are Sexes Natural Kinds? These debates explore the philosophical foundations of particular scientific disciplines, while also examining more general issues in the philosophy of science. The result is a book that's perfect for the advanced philosophy student, building up their knowledge of the foundations of the field and engaging with its cutting-edge questions. Preliminary descriptions of each chapter, annotated lists of further readings for each controversy, and study questions for each chapter help provide clearer and richer snapshots of active controversies for all readers.

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