
The Ethereal Aether A History Of The Michelson Morley Miller Aether Drift Experiments 1880 1930 Jr Swenson Loyd S

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A Descriptive History of the Michelson-Morley Aether-drift Experiments 1880-1930

Oxford
University Press

An American Scientist on the Research Frontier is the first scholarly study of the nineteenth-century American scientist Edward Williams Morley. In part, it is the long-overdue story of a man who lent his name to the Michelson and Morley Ether-Drift Experiment, and who conclusively established the atomic weight of oxygen. It is also the untold story of science in provincial America: what Hamerla presents as science on the "American research frontier". This important examination of Morley's struggle for personal and professional legitimacy extends and transforms our understanding of science during a foundational period, and leads to a number of unique conclusions that are vital to the literature and historiography of science. By revealing important aspects of the scientific culture of the American heartland, An American Scientist on the Research Frontier deepens our understanding of an individual scientist and of American science more broadly. In so doing, Hamerla changes the way we approach and understand the creation of scientific knowledge, scientific communities, and the history of science itself.

Harvard University Press

Exploring the ferocious opposition which once surrounded the theory of relativity, this fascinating account details the strategies and motivations of Einstein's detractors. A unique insight into the dynamics of scientific controversies, ideal for anyone interested in the history and philosophy of physics, popular science, and the public understanding of science.

Physics and Psychics Plunkett Lake Press

The Hungarian émigré Imre Lakatos (1922-1974) earned a worldwide reputation through the influential philosophy of science debates involving Thomas Kuhn, Paul Feyerabend, and Sir Karl Popper. In *Imre Lakatos and the Guises of Reason* John Kadvany shows that embedded in Lakatos's English-language work is a remarkable historical philosophy rooted in his Hungarian past. Below the surface of his life as an Anglo-American philosopher of science and mathematics, Lakatos covertly introduced novel transformations of Hegelian and Marxist ideas about historiography, skepticism, criticism, and rationality. Lakatos escaped Hungary following the failed 1956 Revolution. Before then, he had been an influential Communist intellectual and was imprisoned for years by the Stalinist regime. He also wrote a lost doctoral thesis in the philosophy of science and participated in what was criminal behavior in all but a legal sense. Kadvany argues that this intellectual and political past animates Lakatos's English-language philosophy, and that, whether intended or not, Lakatos integrated a

penetrating vision of Hegelian ideas with rigorous analysis of mathematical proofs and controversial histories of science. Including new applications of Lakatos's ideas to the histories of mathematical logic and economics and providing lucid exegesis of many of Hegel's basic ideas, Imre Lakatos and the Guises of Reason is an exciting reconstruction of ideas and episodes from the history of philosophy, science, mathematics, and modern political history.

Kepler to Einstein, Revised Edition

Oxford University Press

The Ethereal Aether is a historical narrative of one of the great experiments in modern physical science. The fame of the 1887 Michelson-Morley aether-drift test on the relative motion of the earth and the luminiferous aether derives largely from the role it is popularly supposed to have played in the origins, and later in the justification, of Albert Einstein's first theory of relativity; its importance is its own. As a case history of the intermittent performance of an experiment in physical optics from 1880 to 1930 and of the men whose work it was, this study describes chronologically the conception, experimental design, first trials, repetitions, influence on physical theory, and eventual climax of the optical experiment. Michelson, Morley, and their colleague Miller were the prime actors in this half-century drama of confrontation between experimental and theoretical physics. The issue concerned the relative motion of "Spaceship Earth" and the Universe, as measured against the background of a luminiferous medium supposedly filling all interstellar space. At stake, it seemed, were the phenomena of astronomical aberration, the wave theory of light, and the Newtonian concepts of absolute space

and time. James Clerk Maxwell's suggestion for a test of his electromagnetic theory was translated by Michelson into an experimental design in 1881, redesigned and reaffirmed as a null result with Morley in 1887, thereafter modified and partially repeated by Morley and Miller, finally completed in 1926 by Miller alone, then by Michelson's team again in the late 1920s. Meanwhile Helmholtz, Kelvin, Rayleigh, FitzGerald, Lodge, Larmor, Lorentz, and Poincaré—most of the great names in theoretical physics at the turn of the twentieth century—had wrestled with the anomaly presented by Michelson's experiment. As the relativity and quantum theories matured, wave-particle duality was accepted by a new generation of physicists. The aether-drift tests disproved the old and verified the new theories of light and electromagnetism. By 1930 they seemed to explain Einstein, relativity, and space-time. But in historical fact, the aether died only with its believers.

Thematic Origins of Scientific Thought

Kregel Publications

In the nineteenth century, science and technology developed a close and continuing relationship. The important advancements in physics were deeply rooted in the new technologies of the steam engine, the telegraph, and electric power and light. The author explores how the leading technologies of the industrial age helped reshape modern physics.

Theories of Vision in Victorian Literature and Science

Oxford University Press

Nineteenth-Century Aether Theories focuses on aether theories. The selection first offers information on the development of aether theories by taking into consideration the positions of

Christiaan Huygens, Thomas Young, and Augustin Fresnel. The text then examines the elastic solid aether. Concerns include Green's aether theory, MacCullagh's aether theory, and Kelvin's aether theory. The text also reviews Lorentz' aether and electron theory. The development of Lorentz' ideas of the stagnant aether and electrons; Lorentz' theorem of corresponding states and its development; and Lorentz' response to the Michelson-Morley experiment are discussed. The book discusses the relative motion of the earth and the luminiferous aether and laws of the reflection and refraction of light at the common surface of two non-crystallized media. The text also focuses on the electrical and optical phenomena in moving bodies; simplified theory of electrical and optical phenomena in moving systems; and rotational aether in its application to electromagnetism. The selection is a dependable reference for readers wanting to study aether theories.

Physics in the Nineteenth Century

Cambridge University Press

This book is a study of the narrative techniques that developed for two very popular forms of fiction in the nineteenth century - ghost stories and detective stories - and the surprising similarities between them in the context of contemporary theories of vision and sight. Srdjan Smajić argues that to understand how writers represented ghost-seers and detectives, the views of contemporary scientists, philosophers, and spiritualists with which these writers engage have to be taken into account: these views raise questions such as whether seeing really is believing, how much of what we 'see' is actually only inferred, and whether there may be other (intuitive or spiritual) ways of

seeing that enable us to perceive objects and beings inaccessible to the bodily senses. This book will make a real contribution to the understanding of Victorian science in culture, and of the ways in which literature draws on all kinds of knowledge.

Technology and Physics from James Watt to Albert Einstein

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University of Texas Press

The Ethereal Aether Elsevier

This Encyclopedia examines all aspects of the history of science in the United States, with a special emphasis placed on the historiography of science in America. It can be used by students, general readers, scientists, or anyone interested in the facts relating to the development of science in the United States. Special emphasis is placed in the history of medicine and technology and on the relationship between science and technology and science and medicine.

History of Science in United States Penguin

From 1900 to 1924 Spain experienced a stage of vigorous academic freedom and unfettered scientific inquiry that strikingly contrasted with the repressive atmosphere of the periods before and after. Thomas Glick explores this "recovery of science" by focusing on the national discussion provoked by Einstein's trip to Spain in 1923. His visit stimulated a debate on the nature and social value of science that was remarkable in a society so recently awakened to the scientific role in the process of modernization. Einstein's universal appeal created the unlikely occasion for a fascination with science

that cut across social classes and previously established domains of discourse. The political Right, which in other countries opposed relativity in the name of "traditional" Newtonian science, backed the new theories with surprising enthusiasm. Engineers, a politically conservative group, contributed much of the rank-and-file support for Einstein; physicians, who tended to the Left, also eagerly embraced his ideas, as did a host of mutually antagonistic political groups, including anarcho-syndicalists and bourgeois Catalan nationalists. Professor Glick's analysis of this multidimensional scientific forum provides an unusual amount of information on science in Spain and an opportunity to contrast the Spaniards' reception of Einstein's work and that of other nations during this historical period. Originally published in 1988. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

Measuring Nothing, Repeatedly Duke University Press

First Published in 2002. Routledge is an imprint of Taylor & Francis, an informa company.

An Encyclopedia Routledge

This Encyclopedia traces the history of the oldest science from the ancient world to the space age in over 300 entries by leading experts.

The Master of Light: A Biography of Albert A. Michelson Cambridge University Press

With over 150 alphabetically arranged entries about key scientists, concepts, discoveries, technological innovations, and learned institutions, the Oxford Guide to Physics and Astronomy traces the history of physics and astronomy from the Renaissance to the present. For students, teachers, historians, scientists, and readers of popular science books such as *Galileo's Daughter*, this guide deciphers the methods and philosophies of physics and astronomy as well as the historical periods from which they emerged. Meant to serve the lay reader and the professional alike, this book can be turned to for the answer to how scientists learned to measure the speed of light, or consulted for neat, careful summaries of topics as complicated as quantum field theory and as vast as the universe. The entries, each written by a noted scholar and edited by J. L. Heilbron, Professor of History and Vice Chancellor, Emeritus, University of California, Berkeley, reflect the most up-to-date research and discuss the applications of the scientific disciplines to the wider world of religion, law, war, art and literature. No other source on these two branches of science is as informative or as inviting. Thoroughly cross-referenced and accented by dozens of black and white illustrations, the Oxford Guide to Physics and Astronomy is the source to turn to for anyone looking for a quick explanation of alchemy, x-rays and any type of matter or energy in between.

The Roots of Special Relativity JHU Press

This book is a full, long-term history of relativity thinking in physics, from Galileo's early reflections on the proper reference of mechanical motion to

Einstein's exploitation of relativity principles in his theories of special and general relativity.

The NASA History of Manned Lunar Spacecraft to 1969 HMH

Noakes' revelatory analysis of Victorian scientists' fascination with psychic phenomena connects science, the occult and religion in intriguing new ways.

The Motion Paradox Oxford University Press

The epic tale of an ancient, unsolved puzzle and how it relates to all scientific attempts to explain the basic structure of the universe At the dawn of science the ancient Greek philosopher Zeno formulated his paradox of motion, and amazingly, it is still on the cutting edge of all investigations into the fabric of reality. Zeno used logic to argue that motion is impossible, and at the heart of his maddening puzzle is the nature of space and time. Is space-time continuous or broken up like a string of beads? Over the past two millennia, many of our greatest minds—including Aristotle, Galileo, Newton, Einstein, Stephen Hawking, and other current theoreticians—have been gripped by the mystery this puzzle represents. Joseph Mazur, acclaimed author of *Euclid in the Rainforest*, shows how historic breakthroughs in our understanding of motion shed light on Zeno's paradox. The orbits of the planets were explained, the laws of motion were revealed, the theory of relativity was discovered—but the basic structure of time and space remained elusive. In the tradition of *Fermat's Enigma* and *Zero*, *The Motion Paradox* is a lively history of this apparently simple puzzle whose solution—if indeed it can be solved—will reveal nothing less than the fundamental nature of reality.

Nineteenth-Century Aether Theories

Morgan & Claypool Publishers

The first article in this volume, by Tetu Hirosige, is a definitive study of the genesis of Einstein's theory of relativity.

Other articles treat topics—theoretical, experimental, philosophical, and institutional—in the history of physics and chemistry from the researches of Laplace and Lavoisier in the eighteenth century to those of Dirac and Jordan in the twentieth century. Contents: The Ether Problem, the Mechanistic World View, and the Origins of the Theory of Relativity (Tetu Hirosige); Kinstein's Early Scientific Collaboration (Lewis Pyenson); Max Planck's Philosophy of Nature and His Elaboration of the Special Theory of Relativity (Stanley Goldberg); The Concept of Particle Creation before and after Quantum Mechanics (Joan Brombery); Chemistry as a Branch of Physics: Laplace's Collaboration with Lavoisier (Henry Guerlac); Mayer's Concept of "Force": The "Axis" of a New Science of Physics (P. M. Heimann); Debates over the Theory of Solution: A Study of Dissent in Physical Chemistry in the English-Speaking World in the Late Nineteenth and Early Twentieth Centuries (R. G. A. Dolby); The Rise of Physics Laboratories in Britain (Romualdas Sviedrys); The Establishment of the Royal College of Chemistry: An Investigation of the Social Context of Early-Victorian Chemistry (Gerrylynn K. Roberts) Originally published in 1976. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to

vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

Historical Studies in the Physical Sciences, Volume 6 Princeton University Press

Challenges the conventional view of a “disenchanted” and secular modernity, and recovers the complex relation that exists between science, religion, and esotericism in the modern world. Max Weber famously characterized the ongoing process of intellectualization and rationalization that separates the natural world from the divine (by excluding magic and value from the realm of science, and reason and fact from the realm of religion) as the “disenchantment of the world.” Egil Asprem argues for a conceptual shift in how we view this key narrative of modernity. Instead of a sociohistorical process of disenchantment that produces increasingly rational minds, Asprem maintains that the continued presence of “magic” and “enchantment” in people’s everyday experience of the world created an intellectual problem for those few who were socialized to believe that nature should contain no such incalculable mysteries. Drawing on a wide range of early twentieth-century primary sources from theoretical physics, occultism, embryology, radioactivity, psychical research, and other fields, Asprem casts the intellectual life of high modernity as a synchronic struggle across conspicuously different fields that shared surprisingly similar intellectual problems about value, meaning, and the limits of knowledge. “The Problem of Disenchantment is, in its entirety, extraordinarily well researched, argued,

and written—representing at once the most complete and nuanced treatment of the notion of disenchantment within this network of scientific, religious, philosophical, and esoteric discourses and currents.” — Nova Religio

A Descriptive History of the Michelson-Morley Aether-drift Experiments, 1880-1930 Courier Corporation

The fascinating story of an ancient riddle and what it reveals about the nature of time and space Three millennia ago, the Greek philosopher Zeno constructed a series of logical paradoxes to prove that motion is impossible. Today, these paradoxes remain on the cutting edge of our investigations into the fabric of space and time. Zeno's Paradox uses the motion paradox as a jumping-off point for an exploration of the twenty-five-hundred-year quest to uncover the true nature of the universe. From Galileo to Einstein to Stephen Hawking, some of the greatest minds in history have tackled the problem and made spectacular breakthroughs, but through it all, the paradox of motion remains.

Historical Studies in the Physical Sciences, Volume 7 Princeton University Press

The highly acclaimed first edition of this major work convincingly established Gerald Holton’s analysis of the ways scientific ideas evolve. His concept of “themata,” induced from case studies with special attention to the work of Einstein, has become one of the chief tools for understanding scientific progress. It is now one of the main approaches in the study of the initiation and acceptance of individual scientific insights. Three principal consequences of this perspective extend beyond the study of the history of science itself. It provides philosophers of science with the kind of raw material on which some of

the best work in their field is based. It helps intellectual historians to redefine the place of modern science in contemporary culture by identifying influences on the scientific imagination. And it prompts educators to reexamine the conventional concepts of education in science. In this new edition, Holton has masterfully reshaped the contents and widened the coverage. Significant new material has been added, including

a penetrating account of the advent of quantum physics in the United States, and a broad consideration of the integrity of science, as exemplified in the work of Niels Bohr. In addition, a revised introduction and a new postscript provide an updated perspective on the role of themata. The result of this thoroughgoing revision is an indispensable volume for scholars and students of scientific thought and intellectual history.

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