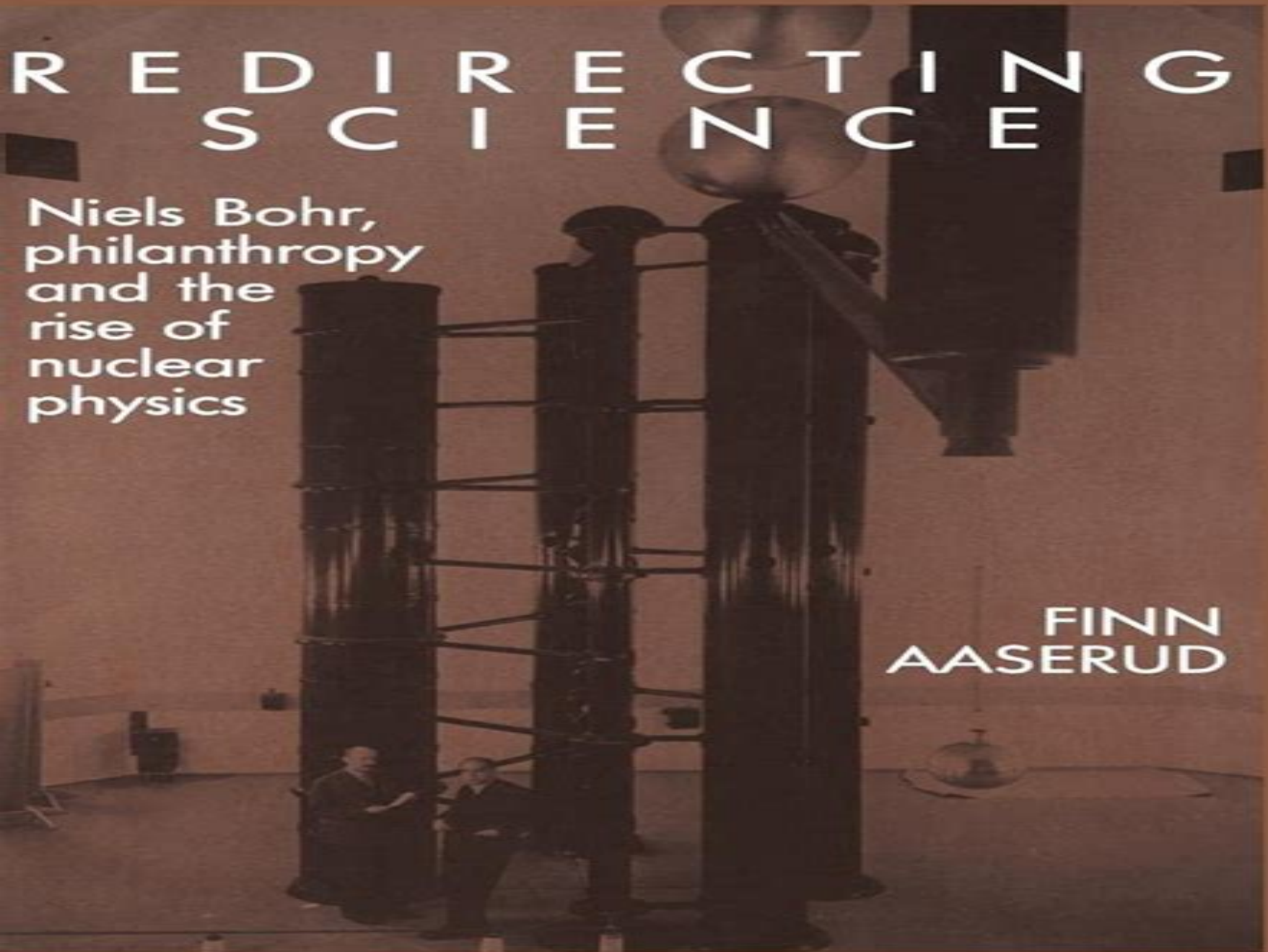


REDIRECTING SCIENCE

Niels Bohr,
philanthropy
and the
rise of
nuclear
physics

FINN
AASERUD



Redirecting Science Niels Bohr Philanthropy And The Rise Of Nuclear Physics

Alexei B Kojevnikov



Redirecting Science Niels Bohr Philanthropy And The Rise Of Nuclear Physics:

Redirecting Science Finn Aaserud, 2003-01-30 This volume is an important study for understanding the complex interconnections between basic science and its sources of economic support in the period between the two world wars The focus of the study is on the Institute for Theoretical Physics later renamed the Niels Bohr Institute at Copenhagen University and the role of its director the eminent Danish physicist Niels Bohr in the funding and administration of the Institute Under Bohr's direction the Copenhagen Institute was a central workplace in the development and the formulation of quantum mechanics in the 1920s and later became an important center for nuclear research in the 1930s Dr Aaserud brings together the scholarship on the internal origins and development of nuclear physics in the 1930s with descriptions of the concurrent changes in private support for international basic science particularly as represented by Rockefeller Foundation philanthropy In the process the book places the emergence of nuclear physics in a larger historical context This book will appeal to historians of science physicists and advanced students in these areas

Redirecting Science: Niels Bohr, Philanthropy, and the Rise of Nuclear Physics Finn Aaserud, 2019-08-17 How and why do complex scientific disciplines such as physics change emphasis from one sub discipline to another Do such transitions stem entirely from developments within the discipline itself or also from external factors This book addresses these questions by examining the transition from atomic to nuclear physics theoretically and experimentally at Niels Bohr's Institute for Theoretical Physics in Copenhagen in the 1930s On the basis of extensive archival research Finn Aaserud shows that the Copenhagen spirit the playful research atmosphere under Bohr's fatherly guidance that permeated the Institute thrived because of extra scientific circumstances that Bohr exploited to the fullest such as the need to help Jewish physicists out of Hitler's Germany and the changing funding policies of private foundations notably those of the Rockefeller Foundation which made it opportune to introduce research in experimental biology at the Institute A clear carefully developed and substantially convincing argument Aaserud gives a detailed and impressively documented account of the direction of Bohr's scientific interests Aaserud is to be congratulated for his original clear indeed didactic work of scholarship and enlightenment Paul Forman *Physics Today* A professional historian's study of the happenings at the Niels Bohr Institute in the decisive years 1930 to 1940 In particular the support of the Institute by Danish and other foundations mainly the Rockefeller Foundation are treated in great detail revealing many interesting aspects of these relationships The detailed accounts of Bohr's negotiations are a testimony to Bohr's uncanny ability to get what he wanted from the various foundations Aaserud's book is an invaluable source of information showing that Bohr was not only an inspiring physicist and philosopher but also a cunning negotiator who knew how to make use of his great reputation for the benefit of science Victor F Weisskopf *Science* Aaserud elucidates Bohr's skills not only as mentor and guiding hand behind the Copenhagen spirit but also as financial negotiator Neil Wasserman *Isis A Journal of the History of Science Society* This book teaches us that running such a truly elite institution required entrepreneurial skills as well as

scientific genius Bohr had an abundance of both Jeremy Bernstein Nature Redirecting Science is the history of Bohr's institute during the 1930s when it experienced a drastic change in its research priorities from a laissez faire mode of work and lack of clearly defined research programme to a concerted research effort in nuclear physics and experimental biology Aaserud gives a highly interesting account of the interaction between physics and biology Aaserud's carefully documented work is an excellent example of how institutional history may transcend social and institutional limitations and integrate also conceptual history of science Helge Kragh Centaurus By showing that a new research programme at one of the most important scientific institutes in the world was triggered and pushed forward by social and financial considerations this book delivers yet another blow to the tired old idea that scientific knowledge is driven by its own internal inexorable logic It also throws valuable light on Bohr's activities and strategies as a fundraiser and institution builder John Krige The British Journal for the History of Science Philanthropy and the Future of Science and Technology Evan S. Michelson, 2020-06-14 An increasingly important and often overlooked issue in science and technology policy is recognizing the role that philanthropies play in setting the direction of research In an era where public and private resources for science are strained the practices that foundations adopt to advance basic and applied research needs to be better understood This first of its kind study provides a detailed assessment of the current state of science philanthropy This examination is particularly timely given that science philanthropies will have an increasingly important and outsized role to play in advancing responsible innovation and in shaping how research is conducted Philanthropy and the Future of Science and Technology surveys the landscape of contemporary philanthropic involvement in science and technology by combining theoretical insights drawn from the responsible research and innovation RRI framework with empirical analysis investigating an array of detailed examples and case studies Insights from interviews conducted with foundation representatives scholars and practitioners from a variety of sectors add real world perspective A wide range of philanthropic interventions are explored focusing on support for individuals institutions and networks with attention paid to the role that science philanthropies play in helping to establish and coordinate multi sectoral funding partnerships Novel approaches to science philanthropy are also considered including the emergence of crowdfunding and the development of new institutional mechanisms to advance scientific research The discussion concludes with an imaginative look into the future outlining a series of lessons learned that can guide how new and established science philanthropies operate and envisioning alternative scenarios for the future that can inform how science philanthropy progresses over the coming decades This book offers a major contribution to the advancement of philanthropic investment in science and technology Thus it will be of considerable interest to researchers and students in public policy public administration political science science and technology studies sociology of science and related disciplines *Quantum Mechanics* Peter Galison, Michael Gordin, David Kaiser, 2013-09-13 Modern science has changed every aspect of life in ways that cannot be compared to developments of previous eras This four volume set presents key

developments within modern physical science and the effects of these discoveries on modern global life The first two volumes explore the history of the concept of relativity the cultural roots of science the concept of time and gravity before during and after Einstein's theory and the cultural reception of relativity Volume 3 explores the impact of modern science upon global politics and the creation of a new kind of war and Volume 4 details the old and new efforts surrounding the elucidation of the quantum world as well as the cultural impact of particle physics This reprint collection pools the best scholarship available collected from a large array of difficult to acquire books journals and pamphlets Each volume begins with an introductory essay written by one of the top scholars in the history of science Students and scholars of modern culture science and society will find these volumes a veritable research gold mine

Stalin's Great Science: The Times And Adventures Of Soviet Physicists Alexei B Kojevnikov, 2004-08-23 World class science and technology developed in the Soviet Union during Stalin's dictatorial rule under conditions of political violence lack of international contacts and severe restrictions on the freedom of information Stalin's Great Science The Times and Adventures of Soviet Physicists is an invaluable book that investigates this paradoxical success by following the lives and work of Soviet scientists including Nobel Prize winning physicists Kapitza Landau and others throughout the turmoil of wars revolutions and repression that characterized the first half of Russia's twentieth century The book examines how scientists operated within the Soviet political order communicated with Stalinist politicians built a new system of research institutions and conducted groundbreaking research under extraordinary circumstances Some of their novel scientific ideas and theories reflected the influence of Soviet ideology and worldview and have since become accepted universally as fundamental concepts of contemporary science In the process of making sense of the achievements of Soviet science the book dismantles standard assumptions about the interaction between science politics and ideology as well as many dominant stereotypes mostly inherited from the Cold War about Soviet history in general Science and technology were not only granted unprecedented importance in Soviet society but they also exerted a crucial formative influence on the Soviet political system itself Unlike most previous studies Stalin's Great Science recognizes the status of science as an essential element of the Soviet polity and explores the nature of a special relationship between experts scientists and engineers and communist politicians that enabled the initial rise of the Soviet state and its mature accomplishments until the pact eroded in later years undermining the communist regime from within

The Launching of Modern American Science, 1846-1876 Robert V. Bruce, 2022-05-01 Winner of the 1988 Pulitzer Prize in History For readers born since the 1930's who have grown up assuming the United States leads the world in science The Launching of Modern American Science 1846-1876 will come as something of a shock It shows that little over a century ago the American scientific community was small mediocre and unpromising Mr Bruce has performed an invaluable service in retrieving from numerous archives the letters and diaries of mid 19th century American scientists in which both the well known ones and the obscure describe their assimilation of the scientific ethos their discovery of the fascination of lab work their contempt for

charlatanism their dreams for the future of American science he has done extensive archival research as well as detailed analyses of scientists and technologists listed in the Dictionary of American Biography he has provided a wealth of information on the people and institutions of mid 19th century American science The New York Times A superb study of the dawn of science and technology in the United States Bruce s premier focus in this and earlier books is mid to late 19th century America and one feels in the presence of a master who creates a reality of time and place that is breathtaking Bruce meticulously documents the text with names numbers dates and places with vignettes and personality sketches noting that it was the American style of science to develop technique to observe describe and catalogue rather than theorize A scholarly gem Kirkus If I had to recommend only one book on the critical period of development of nineteenth century science in America it would be this one Bruce s book a social history of science and the scientific community is about launching the American ship of science on its course to professionalization modernity and international competitiveness His goal is to tell how American scientists and engineers established new national patterns and organizations in science and technology still prevalent today For a most critical period in the history of science in America Bruce has produced a thorough and well written historical demography of scientists their institutions societies journals jobs colleges schools laboratories museums lectures agencies expeditions surveys and public relations Journal of the History of Medicine and Allied Sciences Drawing upon an enormous number of primary sources and scores of secondary works Bruce has produced a truly important book His incisive analyses his exemplary style of writing and his graceful touches of humor make it a fascinating one a splendid book which fills a gap in our knowledge of the history of science in the United States and deserves the attention of everyone who desires to know when and how modern science fledged in America Science A book not just to be looked through but looked at Bruce displays a remarkable grasp of its sources primary and secondary in manuscript and print statistical studies of his own and others and it will be the well informed historian indeed who fails to make discoveries here Bruce writes a proprietary prose that is both eloquent and playful A magisterial study of the development of science under the peculiar constraints of democratic culture The Launching belongs with the half dozen or so classics that have appeared since the history of American science came out of drydock four decades ago Isis A n exceptionally fine and eminently readable piece of historical scholarship The book is a major contribution the scientific community in nineteenth century America Bulletin of the History of Medicine This will be the definitive account for a long time indeed American Scientist I t is difficult to say too much good about The Launching of Modern American Science which is a major interpretation of the period a book so altogether excellent it gives a view of that period that is both convincing and illuminating As a very welcome extra it is so well written that it is a joy to read History of Education Quarterly A n ample thoughtful scholarly and well written survey The New England Quarterly A rich and well documented account This is a readable book that should find a broad audience The British Journal for the History of Science Haphazard Reality: Half a Century of Science Hendrik B.G. Casimir, 2020-09-23 An

outstanding scientific autobiography I remain impressed by its thoughtfulness and charm Steve K Lamoreaux American Journal of Physics A rich autobiography and history of atomic physics One is impressed by Casimir s memory for detail and zeal to find corroboration for the stories he tells And they are splendid tales Gamow s playful pranks in Copenhagen conversations with Lev Landau ardent revolutionary but no Marxist the tragedy of Ehrenfest who killed himself after shooting his hopelessly retarded son A charming idiosyncratic and meaningful account of events and personalities that changed physics Kirkus I myself read this book with fascination meeting old friends such as Gamow Landau Kramers and learning much more about them Also in the book are character sketches of those who made physics in the Netherlands such as Lorentz Kamerlingh Onnes and Ehrenfest the latter remembered with the greatest affection by the author Sir Nevill Mott Contemporary Physics The book contains a valuable entertaining and insightful collection of vignettes of many of the physicists Casimir has associated with Lorentz Ehrenfest Bohr Pauli with whom he studied Goudsmit Uhlenbeck Landau Gamov members of his own generation Kramers Gorter de Haas colleagues in Dutch academic circles Holst and Loupart colleagues at the Philips Laboratories Haphazard Reality also offers valuable insights into Dutch middle class culture and a rewarding overview of Dutch educational and scientific establishments Casimir is a master at deftly and sensitively conveying the psychological ambiance of his surroundings His description of the brilliant young theoretical physicists around Bohr in the early thirties conveys not only the style of doing physics but also delineates the issues addressed by outlining the content of their researches S S Schweber 4S Review Engaging reminiscences by an important Dutch physicist of conversations with the major contributors to 20th century physics An overly modest but otherwise balanced account of his own experiences and contributions from his early years at Leiden to his directorship of the Philips Laboratory The Antioch Review Haphazard Reality paints a vivid and insightful picture of the development of modern physics Steve K Lamoreaux Proceedings of the American Philosophical Society **Chasing the Sun** Richard Cohen,2011-08-04 The Sun is so powerful so much bigger than us that it is a terrifying subject Yet though we depend on it we take it for granted Amazingly the first book of its kind CHASING THE SUN is a cultural and scientific history of our relationship with the star that gives us life Richard Cohen applying the same mix of wide ranging reference and intimate detail that won outstanding reviews for By the Sword travels from the ancient Greek astronomers to modern day solar scientists from Stonehenge to Antarctica site of the solar eclipse of 2003 when penguins were said to sing Mexico s Aztecs to the Norwegian city of Tromso where for two months of the year there is no Sun at all He introduces us to the crucial sunspot cycle in modern economics the religious dances of Indian tribesmen the histories of sundials and calendars the plight of migrating birds the latest theories of global warming and Galileo recording his discoveries in code for fear of persecution And throughout there is the rich Sun literature from the writings of Homer through Dante and Nietzsche to Keats Shelley and beyond Blindingly impressive and hugely readable this is a tour de force of narrative non fiction Nuclear Forces Silvan S. Schweber,2012-06-18 A highly readable account

tracing the future Nobel laureate through his formative years and up to the eve of World War II The Wall Street Journal On the fiftieth anniversary of Hiroshima Nobel winning physicist Hans Bethe called on his fellow scientists to stop working on weapons of mass destruction What drove Bethe the head of Theoretical Physics at Los Alamos during the Manhattan Project to renounce the weaponry he had once worked so tirelessly to create That is one of the questions answered by Nuclear Forces a riveting biography of Bethe's early life and development as both a scientist and a man of principle As Silvan Schweber follows Bethe from his childhood in Germany to laboratories in Italy and England and on to Cornell University he shows how these differing environments were reflected in the kind of physics Bethe produced Many of the young quantum physicists in the 1930s including Bethe had Jewish roots and Schweber considers how Liberal Judaism in Germany helps explain their remarkable contributions A portrait emerges of a man whose strategy for staying on top of a deeply hierarchical field was to tackle only those problems he knew he could solve Bethe's emotional maturation was shaped by his father and by two women of Jewish background his overly possessive mother and his wife who would later serve as an ethical touchstone during the turbulent years he spent designing nuclear bombs Situating Bethe in the context of the various communities where he worked Schweber provides a full picture of prewar developments in physics that changed the modern world and of a scientist shaped by the unprecedented moral dilemmas those developments in turn created Praise for Nuclear Forces Schweber's account of Hans Bethe's life reveals the origins of a charismatic scientist grounded in the importance of his parents and his Jewish roots Schweber recreates the social world that shaped the character of the last of the memorable young scientists who established the field of quantum mechanics Publishers Weekly Nuclear Forces is a carefully researched historically and biographically insightful account of the development of a profession and of one of its leading representatives during a century in which physics and physicists played key roles in scientific cultural political and military developments David C Cassidy author of A Short History of Physics in the American Century **I Died for Beauty** Marjorie Senechal, 2013 A biography of Dorothy Wrinch Provided by publisher *Complementarity Beyond Physics (1928-1962)* D.

Favrholdt, 2013-10-22 This volume is divided into five parts The title of the volume refers primarily to part I which is by far the largest and comprises papers discussing the fundamental questions of biology and related psychological and philosophical problems Following the reproduction of papers brought to publication by Bohr there is a separate Appendix to Part I including some of Bohr's most interesting and substantive unpublished contributions in this area The papers in Part I span the last thirty years of Bohr's life and display his great interest in biological problems and his unremitting efforts to show that biology cannot be reduced to physics and chemistry Part II contains articles of a more general cultural interest Some of these show that Bohr regarded the complementary perspective to be of value also outside the scientific sphere Part III contains the articles Bohr wrote about the great Danish philosopher Harald Hffding These short papers are presented in a section on their own because of the continuing discussion in the history of science about Hffding's possible influence on

Bohr's work in physics and his whole scientific approach Part IV comprises articles illuminating the history of 20th century physics Bohr had great veneration for his predecessors and teachers and he prepared these articles with great care Part V contains correspondence relating to the material in Parts I through IV As in previous volumes an inventory of relevant unpublished manuscripts held at the Niels Bohr Archive constitutes an appendix to the whole volume Useful Bodies Jordan Goodman, Anthony McElligott, Lara Marks, 2004-12-01 A collection of essays that offers a significant contribution to our understanding of the role of the state in human subjects research Journal of the History of Biology Though notoriously associated with Germany human experimentation in the name of science has been practiced in other countries as well both before and after the Nazi era The use of unwitting or unwilling subjects in experiments designed to test the effects of radiation and disease on the human body emerged at the turn of the twentieth century when the rise of the modern coercive state and the professionalization of medical science converged Useful Bodies explores the intersection of government power and medical knowledge in revealing studies of human experimentation germ warfare and jaundice tests in Great Britain radiation malaria and hepatitis experiments in the U S and nuclear fallout trials in Australia These examples of medical abuse illustrate the extent to which living human bodies have been useful to democratic states and emphasize the need for intense scrutiny and regulation to prevent future violations Contributors Brian Balmer University College London Miriam Boleyn Fitzgerald University of Wisconsin Rodney A Hayward University of Michigan Joel D Howell University of Michigan Margaret Humphreys Duke University David S Jones Massachusetts General Hospital Robert L Martensen Tulane University School of Medicine Glenn Mitchell University of Wollongong Jenny Stanton London School of Hygiene and Tropical Medicine Gilbert Whittemore independent scholar attorney Boston Each chapter is a startling case study that examines the nature and degree of the state's involvement in human experimentation Issues in Law and Medicine Well written and meticulously researched Journal of the History of Medicine and Allied Sciences **Controversy and Consensus: Nuclear Beta Decay 1911-1934** Carsten Jensen, 2012-12-06 To all four of us Carsten was the best possible friend and colleague To Finn he was a fellow student in the history of science for several years at the Niels Bohr Institute to Relge he was a welcome resource for personal and intellectual interaction in an otherwise less than fertile environment for the history of science Roger was Carsten's friend and advisor not least in the development of the dissertation on which the present book is based and as director of the Niels Bohr Archive Erik was his main advisor in his historical work Because he was the person closest to Carsten's work on his Ph D dissertation on the history of beta decay on which the present book is based it is only fitting that Erik stands as single author of the words in Carsten's memory at the very beginning of this book Before his untimely death shortly after the completion of the Ph D dissertation Carsten had himself plans to develop the dissertation into a book Being a true perfectionist he wanted to rework the manuscript substantively especially with regard to relating it to the broader discussion among historians of science The Copenhagen Network Alexei Kojevnikov, 2020-12-02 This book is a historical analysis of

the quantum mechanical revolution and the emergence of a new discipline from the perspective not of a professor but of a recent or actual Ph D student just embarking on an uncertain academic career in economically hard times Quantum mechanics exploded on to the intellectual scene between 1925 and 1927 with more than 200 publications across the world the majority of them authored by young scientists under the age of 30 graduate students or postdoctoral fellows The resulting theory was a collective product that no single authority could claim but it had a major geographical nod the Copenhagen Institute of Theoretical Physics where most of the informal pre published exchange of ideas occurred and where every participant of the new community aspired to visit A rare combination of circumstances and resources political diplomatic financial and intellectual allowed Niels Bohr to establish this Mecca of quantum theory outside of traditional and more powerful centres of science Transitory international postdoctoral fellows rather than established professors developed a culture of research that became the source of major innovations in the field Temporary assistantships postdoctoral positions and their equivalents were the chief mode of existence for young academics during the period of economic crisis and post WWI international tensions Insecure career trajectories and unpredictable moves through non stable temporary positions contributed to their general outlook and interpretations of the emerging theory of quantum mechanics This book is part of a four volume collection addressing the beginnings of quantum physics research at the major European centres of G ttingen Copenhagen Berlin and Munich these works emerged from an expansive study on the quantum revolution as a major transformation of physical knowledge undertaken by the Max Planck Institute for the History of Science and the Fritz Haber Institute 2006 2012 For more on this project see the dedicated Feature Story The Networks of Early Quantum Theory at the Max Planck Institute for the History of Science <https://www.mpiwg-berlin.mpg.de/feature-story/networks-early-quantum-theory>

The Cold War and American Science Stuart W. Leslie, 1993 Annotation New Scientist *From C-numbers to Q-numbers* Olivier Darrigol, Research Director Olivier Darrigol, 1992-01-01 The history of quantum theory is a maze of conceptual problems In this lucid and learned book Olivier Darrigol tracks the role of formal analogies between classical and quantum theory from Planck s first introduction of the quantum of action to Dirac s formulation of quantum mechanics In so doing Darrigol illuminates not only the history of quantum theory but also the role of analogies in scientific thinking and theory change The most remarkable result of such analogical argument in quantum theory was Bohr s correspondence principle which in Darrigol s words performed the acrobatic task of bridging two mutually contradictory theories classical electrodynamics and atomic theory without diminishing the contrast between them By analyzing the origins development and applications of this principle *From c Numbers to q Numbers* explains the remarkable fruitfulness of the research done under Bohr s guidance between 1916 and 1925 and shows why Heisenberg claimed that quantum mechanics was born as a quantitative formulation of the correspondence principle With a physicist s sure hand Darrigol examines the formal and the epistemological aspects of the analogy between classical and quantum mechanics Unlike previous works which have tended

to focus on qualitative global arguments he follows the lines of mathematical reasoning and symbolizing and by doing so he is able to show the motivations of early quantum theorists more precisely and provocatively than ever before For instance Darrigol demonstrates that a universal principle of elementary chaos underlay Planck's analogies and that Bohr's correspondence principle was related to his elaboration of a minimal quantumtheoretical language Most striking Darrigol reveals how Dirac's personal conception of the relations among algebra geometry use of the analogy between c numbers and and physics conditioned his highly creative q numbers Original erudite and witty From c Numbers to q Numbers sets a new standard for the philosophically perceptive and mathematically precise history of quantum mechanics For years to come it will influence historical and philosophical discussions of twentieth century physics

The Cambridge History of Science: Volume 8, Modern Science in National, Transnational, and Global Context Hugh Richard Slotten, Ronald L. Numbers, David N. Livingstone, 2020-04-09

This volume in the highly respected Cambridge History of Science series is devoted to exploring the history of modern science using national transnational and global frames of reference Organized by topic and culture its essays by distinguished scholars offer the most comprehensive and up to date nondisciplinary history of modern science currently available Essays are grouped together in separate sections that represent larger regions Europe Africa the Middle East South Asia East and Southeast Asia the United States Canada Australia New Zealand Oceania and Latin America Each of these regional groupings ends with a separate essay reflecting on the analysis in the preceding chapters Intended to provide a balanced and inclusive treatment of the modern world contributors analyze the history of science not only in local national and regional contexts but also with respect to the circulation of knowledge tools methods people and artifacts across national borders

The Life and Science of Harold C. Urey Matthew Shindell, 2019-12-03
Harold C Urey 1893 1981 whose discoveries lie at the foundation of modern science was one of the most famous American scientists of the twentieth century Born in rural Indiana his evolution from small town farm boy to scientific celebrity made him a symbol and spokesman for American scientific authority Because he rose to fame alongside the prestige of American science the story of his life reflects broader changes in the social and intellectual landscape of twentieth century America In this the first ever biography of the chemist Matthew Shindell shines new light on Urey's struggles and achievements in a thoughtful exploration of the science politics and society of the Cold War era From Urey's orthodox religious upbringing to his death in 1981 Shindell follows the scientist through nearly a century of American history his discovery of deuterium and heavy water earned him the Nobel Prize in 1934 his work on the Manhattan Project helped usher in the atomic age he initiated a generation of American scientists into the world of quantum physics and chemistry and he took on the origin of the Moon in NASA's lunar exploration program Despite his success however Urey had difficulty navigating the nuclear age In later years he lived in the shadow of the bomb he helped create plagued by the uncertainties unleashed by the rise of American science and unable to reconcile the consequences of scientific progress with the morality of religion Tracing Urey's

life through two world wars and the Cold War not only conveys the complex historical relationship between science and religion in the twentieth century but it also illustrates how these complexities spilled over into the early days of space science. More than a life story, this book immerses readers in the trials and triumphs of an extraordinary man and his extraordinary times.

Love, Literature and the Quantum Atom Finn Aaserud, John L. Heilbron, 2013-07-18 Niels Bohr ranks with Einstein among the physicists of the 20th century. He rose to this status through his invention of the quantum theory of the atom and his leadership in its defense and development. He also ranks with Einstein in his humanism and his sense of responsibility to his science and the society that enabled him to create it. Our book presents unpublished excerpts from extensive correspondence between Bohr and his immediate family and uses it to describe and analyze the psychological and cultural background to his invention. The book also contains a reprinting of the three papers of 1913, the Trilogy, in which Bohr worked out the provisional basis of a quantum theory of the atom.

Creating a Physical Biology Phillip R. Sloan, Brandon Fogel, 2024-05-31 In 1935, geneticist Nikolai Timofeev-Ressovsky, radiation physicist Karl G. Zimmer, and quantum physicist Max Delbrück published "On the Nature of Gene Mutation and Gene Structure," known subsequently as the Three Man Paper. This seminal paper advanced work on the physical exploration of the structure of the gene through radiation physics and suggested ways in which physics could reveal definite information about gene structure, mutation, and action. Representing a new level of collaboration between physics and biology, it played an important role in the birth of the new field of molecular biology. The paper's results were popularized for a wide audience in the "What is Life?" lectures of physicist Erwin Schrödinger in 1944. Despite its historical impact on the biological sciences, the paper has remained largely inaccessible because it was only published in a short-lived German periodical. *Creating a Physical Biology* makes the Three Man Paper available in English for the first time. Brandon Fogel's translation is accompanied by an introductory essay by Fogel and Phillip Sloan and a set of essays by leading historians and philosophers of biology that explore the context, contents, and subsequent influence of the paper as well as its importance for the wider philosophical analysis of biological reductionism.

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Redirecting Science Niels Bohr Philanthropy And The Rise Of Nuclear Physics Introduction

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