Memorandum For Physical Sciences March Paper In Ekurhuleni North

British University Observatories fills a gap in the historiography of British astronomy by offering the histories of observatories identified as a group by their shared characteristics. The first full histories of the Oxford and Cambridge observatories are here central to an explanatory history of each of the six that undertook research before World War II - Oxford, Dunsink, Cambridge, Durham, Glasgow and London. Each struggled to evolve in the middle ground between the royal observatories and those of the 'Grand Amateurs' in the nineteenth century. Fundamental issues are how and why astronomy came into the universities, how research was reconciled with teaching, lack of endowment, and response to the challenge of astrophysics. One organizing theme is the central importance of the individual professor-directors in determining the fortunes of these observatories, the community of assistants, and their role in institutional politics sometimes of the murkiest kind, patronage networks and discipline shaping coteries. The use of many primary sources illustrates personal motivations and experience. This book will intrigue anyone interested in the history of astronomy, of telescopes, of scientific institutions, and of the history of universities. The history of each individual observatory can easily be followed from foundation to 1939, or compared to experience elsewhere across the period. Astronomy is competitive and international, and the British experience is contextualised by comparison for the first time to those in Germany, France, Italy and the USA.

In 1994 the National Research Council published Recommendations for the Disposal of Chemical Agents and Munitions, which assessed the status of various alternative destruction technologies in comparison to the Army's baseline incineration system. The volume's main finding was that no alternative technology was preferable to incineration but that work should continue on the neutralization technologies under Army consideration. In light of the fact that alternative technologies have evolved since the 1994 study, this new volume evaluates five Army-chosen alternatives to the baseline incineration system for the disposal of the bulk nerve and mustard agent stored in ton containers at Army sites located in Newport, Indiana, and Aberdeen, Maryland, respectively. The committee assessed each technology by conducting site visits to the locations of the technology proponent companies and by meeting with state regulators and citizens of the affected areas. This volume makes recommendations to the Army on which, if any, of the five technologies has reached a level of maturity appropriate for consideration for pilot-scale testing at the two affected sites.

From the 1960s onwards, the clothing industry in the Netherlands and elsewhere in the European Union, experienced a deep crisis. Numerous went bankrupt and, even more so, workers lost their jobs. Imports from low wage countries started providing the bulk of retailers' collections.

Beginning with a couple of essays dealing with the experimental and mathematical foundations of physics in the work of Henry Cavendish and Joseph Fourier, the volume goes on to consider the broad areas of investigation that constituted the central foci of the development of the physics discipline in the nineteenth century: electricity and magnetism, including especially the work of

Michael Faraday, William Thomson, and James Clerk Maxwell; and thermodynamics and matter theory, including the theoretical work and legacy of Josiah Willard Gibbs, some experimental work relating to thermodynamics and kinetic theory of Heinrich Hertz, and the work of Felix Seyler-Hoppe on hemoglobin in the neighboring field of biophysics/biochemistry. Moving on to the beginning of the twentieth century, a set of three articles on Albert Einstein deal with his early career and various influences on his work. Finally, a set of historiographical issues important for the history of physics are discussed, and the chronological conclusion of the volume is an article on the Solvay Conference of 1933. For physicists interested in the history of their discipline, historians and philosophers of science, and graduate students in these and related disciplines.

"Meticulously researched and unapologetically romantic, How the Hippies Saved Physics makes the history of science fun again." —Science In the 1970s, an eccentric group of physicists in Berkeley, California, banded together to explore the wilder side of science. Dubbing themselves the "Fundamental Fysiks Group," they pursued an audacious, speculative approach to physics, studying quantum entanglement in terms of Eastern mysticism and psychic mind reading. As David Kaiser reveals, these unlikely heroes spun modern physics in a new direction, forcing mainstream physicists to pay attention to the strange but exciting underpinnings of quantum theory.

Despite an enduring belief that science should be taught, there has been no enduring consensus about how or why. This is especially true when it comes to teaching scientific process. John Rudolph shows that how we think about and teach science will either sustain or thwart future innovation, and determine how science is perceived by the public.

Composed by nine of his former students on the occasion of the Miller Center's tenth anniversary, these essays commemorate Dr. Kenneth W. Thompson's educational leadership and support. It is fitting that the contributors to this volume have chosen to present Dr. Thompson with a collection of essays devoted to moral reasoning and statecraft. As teacher and scholar, Dr. Thompson returns time and time again to explore the moral resources of statecraft and to probe the normative foundations of political choice. Contributors to this volume are Reed Davis, Alberto R. Coll, Farhang Rajaee, W. David Clinton, Daniel G. Lang, Nicolai N. Petro, Robert A. Strong, Ian Graig, Gale A. Mattox and Brian E. Klunk. Includes a complete bibliography of Dr. Thompson's writings. Co-published with the Miller Center of Public Affairs.

Primarily a scientific biography of Walther H. Nernst (1864–1941), one of Germany's most important, productive and often controversial scientists, this 1999 book addresses a set of specific scientific problems that evolved at the intersection of physics, chemistry and technology during one of the most revolutionary periods of modern physical science. Nernst, who won the 1920 Nobel Prize for Chemistry, was a key figure in the transition to a modern physical science, contributing to the study of solutions, of chemical equilibria, and of the behavior of matter at the extremes of the temperature range. A director of major research institutes, rector of the Berlin University, and inventor of a new electric lamp, Nernst was the first 'modern' physical chemist, an able scientific organizer, and a savvy entrepreneur. His career exemplified the increasing connection between German technical industry and academic science, between theory and experiment, and between concepts and practice.

To some philosophers, seeking to understand the human condition, technology is a necessary guide. But to think through the complex human phenomenon of technology we must tackle philosophy of science, philosophy of culture, moral issues, comparative civilizational studies, and the economics of specific industrial and military technologies in their historical contexts. The philoso pher wants to grasp the technological factor in this troubled world, even as we see it is only one factor, and that it does not speak openly for itself. Put directly, our human troubles to a considerable extent have been transformed, exaggerated, distorted, even degraded, perhaps transcended, by what engi neers and scientists, entrepreneurs and politicians, have wrought. But our problems are ancient, problems of dominations, struggles, survival, values in conflict, greed and insane sadisms. To get some conceptual light on the social reality which seems immediately to be so complicated, a philosopher will need to learn from the historians of technology. A few years ago, the philosopher Elisabeth Straker concluded that "a his torical philosophy of technology [is required] since history - and history alone - provides all those concepts that form part of the repertoire of the philosoph ical analysis of technology". And she added that this goes far beyond the triviality that like other cultural achievements technology has its historical development. Now historical comprehension is no substitute for a logical methodology in the analysis of technological problems.

Information Technology has become a key factor in industry and society in the post-war world and continues to evolve, re-shaping the local and global economy and reorienting comparative and competitive advantages. This book brings together a series of country-based studies that chart the growth and effectiveness of information technology policy.

Explores how the human brain works, covering such topics as memory, sleep, dreaming, dysfunctions, and new technology used to learn more about it.

Non-lethal weapons (NLWs) are designed to minimize fatalities and other undesired collateral damage when used. Events of the last few years including the attack on the USS Cole have raised ideas about the role NLWs can play in enhancing support to naval forces. In particular to what extent and in what areas should Department of the Navy (DoN) -sponsored science and technology (S&T) provide a research base for developing NLW capabilities? To assist with this question and to evaluate the current NLWs program, the Joint Non-Lethal Weapons Directorate (JNLWD) and the Office of Naval Research (ONR) requested the National Research Council perform an assessment of NLWs science and technology. The report presents the results of that assessment. It discusses promising NLW S&T areas, development accomplishments and concerns about NLW, and series of recommendations about future NLW development and application.

When Archibald Liversidge first arrived at Sydney University in 1872 as reader in geology and assistant in the laboratory he had about ten students and two rooms in the main building. In 1874 he became professor of geology and mineralogy and by 1879 he

had persuaded the senate to open a faculty of science. He became its first dean in 1882. Liversidge also played a major role in the setting up of the Australasian Association for the Advancement of Science which held its first congress in 1888. For anyone interested in Archibald Liversidge, his contribution to crystallography, mineral chemistry, chemical geology, strategic minerals policy and a wider field of colonial science.

The book, as originally conceived, was to be limited to technical considerations, but the scientific course of event has been so interwoven with non-scientific, but nevertheless related events, the authors felt necessary to include an account of this situation. Accordingly, the book is divided into five sections entitled: Stratospheric ozone Atmospheric processes influencing stratospheric ozone Does man influence stratospheric ozone Effects and research Public policy

Digital information and networks challenge the core practices of libraries, archives, and all organizations with intensive information management needs in many respectsâ€"not only in terms of accommodating digital information and technology, but also through the need to develop new economic and organizational models for managing information. LC21: A Digital Strategy for the Library of Congress discusses these challenges and provides recommendations for moving forward at the Library of Congress, the worldâ€™s largest library. Topics covered in LC21 include digital collections, digital preservation, digital cataloging (metadata), strategic planning, human resources, and general management and budgetary issues. The book identifies and elaborates upon a clear theme for the Library of Congress that is applicable more generally: the digital age calls for much more collaboration and cooperation than in the past. LC21 demonstrates that information-intensive organizations will have to change in fundamental ways to survive and prosper in the digital age.

Containing the proceedings of the symposium held by the American Academy of Arts and Sciences to celebrate the 100th anniversary of the birth of Niels Bohr, this collection was first published in 1988. More than any other individual, Bohr was responsible for the development of quantum mechanics and for many of its applications in the pursuit of fundamental understanding of physical reality. In addition to his unique role in the discovery and elucidation of quantum theory, Bohr led the study of the fission of nuclei and was greatly concerned with the impact of the existence of the atomic bomb in the post-World War II era. This unique volume provides a panoramic view of modern physics, some of the philosophical issues associated with quantum theory, the impact of this momentous scientific development on the political circumstance of the Cold War Era and the qualities of a superlative scientist.

It is generally believed that doing science means accumulating empirical data with no or little reference to the interpretation of the data based on the scientist’s th- retical framework or presuppositions. Holton (1969a) has deplored the widely accepted myth (experimenticism) according to which progress in science is presented as the inexorable result of the pursuit of logically sound conclusions from un- biguous experimental data. Surprisingly, some of the leading scientists themselves (Millikan is a good example) have contributed to perpetuate the myth with respect to modern science being essentially empirical, that is carefully tested experim- tal facts (free of a priori conceptions), leading to inductive generalizations. Based on the existing knowledge in a

field of research a scientist formulates the guiding assumptions (Laudan et al. , 1988), presuppositions (Holton, 1978, 1998) and “hard core” (Lakatos, 1970) of the research program that constitutes the imperative of presuppositions, which is not abandoned in the face of anomalous data. Laudan and his group consider the following paraphrase of Kant by Lakatos as an important guideline: philosophy of science without history of science is empty. Starting in the 1960s, this “historical school” has attempted to redraw and replace the positivist or logical empiricist image of science that dominated for the first half of the twentieth century. Among other aspects, one that looms large in these studies is that of “guiding assumptions” and has considerable implications for the main thesis of this monograph (Chapter 2).

The United States must operate successfully in space to help assure its security and economic well being. The Department of the Navy is a major user of space capabilities, although those capabilities are now primarily provided by DOD, the Air Force, and NOAA. Following a DOD assessment of national space security management in 2001, the Navy commissioned a Panel to Review Space to assess Navy space policy and strategy. As an extension of that review, the NRC was requested by the Navy to examine its needs in space for providing future operational and technical capabilities. This report presents a discussion of the strategic framework of future space needs, the roles and responsibilities for meeting those needs, an assessment of Navy support to space mission areas, and a proposed vision for fulfilling Naval forces space needs.

Starting in the 1950s, US physicists dominated the search for elementary particles; aided by the association of this research with national security, they held this position for decades. In an effort to maintain their hegemony and track down the elusive Higgs boson, they convinced President Reagan and Congress to support construction of the multibillion-dollar Superconducting Super Collider project in Texas—the largest basic-science project ever attempted. But after the Cold War ended and the estimated SSC cost surpassed ten billion dollars, Congress terminated the project in October 1993. Drawing on extensive archival research, contemporaneous press accounts, and over one hundred interviews with scientists, engineers, government officials, and others involved, Tunnel Visions tells the riveting story of the aborted SSC project. The authors examine the complex, interrelated causes for its demise, including problems of large-project management, continuing cost overruns, and lack of foreign contributions. In doing so, they ask whether Big Science has become too large and expensive, including whether academic scientists and their government overseers can effectively manage such an enormous undertaking.