Memorundum Physical Science Paper 2 Feb March 2012

In a lively investigation into the boundaries between popular culture and early-modern science, Sara Schechner presents a case study that challenges the view that rationalism was at odds with popular belief in the development of scientific theories. Schechner Genuth delineates the evolution of people's understanding of comets, showing that until the seventeenth century, all members of society dreaded comets as heaven-sent portents of plague, flood, civil disorder, and other calamities. Although these beliefs became spurned as "vulgar superstitions" by the elite before the end of the century, she shows that they were nonetheless absorbed into the science of Newton and Halley, contributing to their theories in subtle yet profound ways. Schechner weaves together many strands of thought: views of comets as signs and causes of social and physical changes; vigilance toward monsters and prodigies as indicators of God's will; Christian eschatology; scientific interpretations of Scripture; astrological prognostication and political propaganda; and celestial mechanics and astrophysics. This exploration of the interplay between high and low beliefs about nature leads to the conclusion that popular and long-held views of comets as divine signs were not overturned by astronomical discoveries. Indeed, they became part of the foundation on which modern cosmology was built.

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.

How We Teach Science

History of Acquisition in the Department of Defense, Volume 1

Guide to U. S. Government Publications

Energy Research Abstracts

Monthly Catalog of United States Government Publications

Critical Appraisal of Physical Science as a Human Enterprise

Based on formerly untapped archival sources as well as on interviews of participants, and building upon prior historical literature, Shaping Biology covers new ground and raises significant issues for further research on postwar biology and on federal funding of science in general.

During the 1950s, leading American scientists embarked on an unprecedented project to remake high school science education. Dissatisfaction with the 'soft' school curriculum of the time advocated by the professional education establishment, and concern over the growing technological sophistication of the Soviet Union, led government officials to encourage a handful of elite research scientists, fresh from their World War II successes, to revitalize the nations' science curricula. In Scientists in the Classroom , John L. Rudolph argues that the Cold War environment, long neglected in the history of education literature, is crucial to understanding both the reasons for the public acceptance of scientific authority in the field of education and the nature of the curriculum materials that were eventually produced.

Drawing on a wealth of previously untapped resources from government and university archives, Rudolph focuses on the National Science Foundation-supported curriculum projects initiated in 1956. What the historical record reveals, according to Rudolph, is that these materials were designed not just to improve American science education, but to advance the professional interest of the American scientific community in the postwar period as well.

Rearming for the Cold War, 1945-1960

Millennial Biology: The National Science Foundation and American Biology, 1975-2005

Advisory Committee on Human Radiation Experiments

The Sale Catalogues of British Government Publications, 1836-1921

National Institutes of Health Annual Report of International Activities

Guide to U.S. Government Publications

This book illuminates how Berkner became a model that produced the scientist/advisor/policymaker that helped build post-war America. It does so by providing a detailed account of the personal and professional beliefs of one of the most influential figures in the American scientific community; a figure that helped define the political and social climates that existed in the United States during the Cold War.

When the Soviets launched Sputnik in 1957, thousands of ordinary people across the globe seized the opportunity to participate in the start of the Space Age. Known as the "Moonwatchers," these largely forgotten citizen-scientists helped professional astronomers by providing critical and otherwise unavailable information about the first satellites. In Keep Watching the Skies!, Patrick McCray tells the story of this network of pioneers who, fueled by civic pride and exhilarated by space exploration, took part in the twentieth century's biggest scientific endeavor. Around the world, thousands of teenagers, homemakers, teachers, amateur astronomers, and other citizens joined Moonwatch teams. Despite their diverse backgrounds and nationalities, they shared a remarkable faith in the transformative power of science--a faith inspired by the Cold War culture in which they lived. Against the backdrop of the space race and technological advancement, ordinary people developed an unprecedented desire to contribute to scientific knowledge and to investigate their place in the cosmos. Using homemade telescopes and other gadgets, Moonwatchers witnessed firsthand the astonishing beginning of the Space Age. In the process, these amateur scientists organized themselves into a worldwide network of satellite spotters that still exists today. Drawing on previously unexamined letters, photos, scrapbooks, and interviews, Keep Watching the Skies! recreates a pivotal event from a

perspective never before examined--that of ordinary people who leaped at a chance to take part in the excitement of space exploration.

Book catalog of the Library and Information Services Division

Monthly Catalogue, United States Public Documents

Scientists in the Classroom

What's Changed, and Why It Matters

The Story of Operation Moonwatch and the Dawn of the Space Age

Rearming for the Cold War 1945 -- 1960

Scores of talented and dedicated people serve the forensic science community, performing vitally important work. However, they are often constrained by lack of adequate resources, sound policies, and national support. It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application. Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the creation of a new government entity, the National Institute of Forensic Science, to establish and enforce standards within the forensic science community. The benefits of improving and regulating the forensic science disciplines are clear: assisting law enforcement officials, enhancing homeland security, and reducing the risk of wrongful conviction and exoneration. Strengthening Forensic Science in the United States gives a full account of what is needed to advance the forensic science disciplines, including upgrading of systems and organizational structures, better training, widespread adoption of uniform and enforceable best practices, and mandatory certification and accreditation programs. While this book provides an essential call-to-action for congress and policy makers, it also serves as a vital tool for law enforcement agencies, criminal prosecutors and attorneys, and forensic science educators.

Semiannual, with semiannual and annual indexes. References to all scientific and technical literature coming from DOE, its laboratories, energy centers, and contractors. Includes all works deriving from DOE, other related government-sponsored information, and foreign nonnuclear information. Arranged under 39 categories, e.g., Biomedical sciences, basic studies; Biomedical sciences, applied studies; Health and safety; and Fusion energy. Entry gives bibliographical information and abstract. Corporate, author, subject, report number indexes.

Supplemental

Book Catalog of the Library and Information Services Division: Shelf List catalog

Specifications to Support Classification, Standards of Accuracy, and General Specifications of Geodetic Control Surveys

Shaping Biology

Keep Watching the Skies!

Parliamentary Papers

This second volume of James Clerk Maxwell's correspondence and manuscript papers begins in mid-1862 with his first reference reports for the Royal Society, and concludes in December 1873 shortly before the formal inauguration of the Cavendish Laboratory. The documents describe his involvement with the wider scientific community in Victorian Britain, and the period of his scientific maturity. In the years 1862-73 Maxwell wrote the classic works on statistical molecular theory and field physics, including the Treatise on Electricity and Magnetism, which established his unique status in the history of science. His letters and drafts of this period provide unique

insight into this work, which remains fundamental to modern physics. Few of the manuscripts reproduced here have received prior publication in other than truncated form, and the volume includes Maxwell's correspondence with G.G. Stokes, Lord Kelvin and P.G. Tait. The edition is annotated with a full historical commentary and will be fascinating reading for anyone interested in the history of science or physics.

Study & Master Physical Sciences Grade 12 has been especially developed by an experienced author team for the Curriculum and Assessment Policy Statement (CAPS). This new and easy-to-use course helps learners to master essential content and skills in Physical Sciences.

Moral Reasoning and Statecraft

Physical Sciences, Grade 12

From Medical Chemistry to Biochemistry

Strengthening Forensic Science in the United States

The Cold War Reconstruction of American Science Education

Essays Presented to Kenneth W. Thompson

National Science Foundation (NSF) is a unique federal agency because it supports scientific research financially, but does not engage in scientific work itself. Its history is known only in part because the NSF is a vibrant, expanding, and living entity that makes the final telling of its story impossible. Much can be learned from its beginning as well as its component parts. If the founding of the NSF in 1950 was couched in an era of physics, especially atomic physics, certainly by the end of the 20th century and the beginning of the 21st, biology was, and remains, the queen of sciences for the predictable future. This book highlights the elite status of America's biological sciences as they were funded, affected, and, to a very real degree, interactively guided by the NSF. It examines important events in the earlier history of the Foundation because they play strongly upon the development of the various biology directorates. Issues such as education, applied research, medical science, the National Institutes of Health, the beginnings of biotechnology, and other matters are also discussed.

Monthly Catalogue, United States Public DocumentsMonthly Catalog of United States Government PublicationsERDA Energy Research AbstractsEnergy Research Abstracts

Final Report

The Scientific Letters and Papers of James Clerk Maxwell: Volume 2, 1862-1873

Nuclear, Renewables and Climate Change; Sixth Report of Session 2005-06

The National Science Foundation and American Biological Research, 1945-1975

First, supplementary, and second reports, with minutes of evidence and appendices. 1872 (c.536)

Keeping the Lights on

This volume is a history of the acquisition of major weapon systems by the United States armed forces from 1945 to 1960, the decade and a half that spanned the Truman and Eisenhower administrations following World War II. These instruments of warfare—aircraft, armored vehicles, artillery, guided missiles, naval vessels, and supporting electronic systems—when combined with nuclear warheads, gave the postwar American military unprecedented deterrent and striking power.1 They were also enormously expensive. The volume is organized chronologically, with individual chapters addressing the roles of OSD, the Army, Navy, and

Air Force in two distinct periods. The first, roughly coinciding with President Truman's tenure, covers the years from the end of World War II through the end of the Korean War in 1953. The second spans the two terms of the Eisenhower presidency from 1953 through early 1961. The year 1953 marked a natural breakpoint between the two periods. The Korean War had ended. President Eisenhower and his defense team began implementing the "New Look," a policy and strategy based on nuclear weapons, which they believed would provide security and make it possible to reduce military spending. The New Look's stress on nuclear weapons, along with the deployment of the first operational guided missiles and the rapid advances subsequently made in nuclear and missile technology, profoundly influenced acquisition in the services throughout the 1950s and the remainder of the century. As used in this study, the term "acquisition" encompasses the activities by which the United States obtains weapons and other equipment. In surveying the history of acquisition between 1945 and 1960, this study discusses or refers in passing to many of the hundreds of weapon system programs initiated by the services in that period, but it is not a weapons encyclopedia. Instead, it investigates a few major programs in depth in the belief that such detailed examination best reveals the evolution of acquisition policies, organizations, and processes, and the various forces influencing weapons programs.

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).

A Path Forward

Trademarks

Nuclear Science Abstracts

The Journal of the National Archives

Directory of Engineering Document Sources

ERDA Energy Research Abstracts

Keeping the lights On : Nuclear, renewables and climate change, sixth report of session 2005-06, Vol. 3: Written Evidence

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.

Reports from Commissioners

Science, Cold War and the American State

The Making of a Biomedical Discipline

I. The Greek school philosophy, with reference to physical science. II. The physical sciences in ancient Greece. III. Greek astronomy. IV. Physical science in the middle ages. V. Formal astronomy after the stationary period. VI. Mechanics, including fluid mechanics. VII. Physical astronomy.

Additions to the 3d ed

Prologue

The Manhattan Project—the World War II race to produce an atomic bomb—transformed the entire country in myriad ways, but it did not affect each region equally. Acting on an enduring perception of the American West as an "empty" place, the U.S. government located a disproportionate number of nuclear facilities—particularly the ones most likely to spread pollution—in western states. The Manhattan Project manufactured plutonium at Hanford, Washington; designed and assembled bombs at Los Alamos, New Mexico; and detonated the world's first atomic bomb at Alamagordo, New Mexico, on June 16, 1945. In the years that followed the war, the U.S. Atomic Energy Commission selected additional western sites for its work. Many westerners initially welcomed the atom. Like federal officials, they, too, regarded their region as "empty," or underdeveloped. Facilities to make, test, and base atomic weapons, sites to store nuclear waste, and even nuclear power plants were regarded as assets. By the 1960s and 1970s, however, regional attitudes began to change. At a variety of locales, ranging from Eskimo Alaska to Mormon Utah, westerners devoted themselves to resisting the atom and its effects on their environments and communities. Just as the atomic age had dawned in the American West, so its artificial sun began to set there. The Atomic West brings together contributions from several disciplines to explore the impact on the West of the development of atomic power from wartime secrecy and initial postwar enthusiasm to public doubts and protest in the 1970s and 1980s. An impressive example of the benefits of interdisciplinary studies on complex topics, The Atomic West advances our understanding of both regional history and the history of science, and does so with human communities as a significant focal point. The book will be of special

interest to students and experts on the American West, environmental history, and the history of science and technology.

This penetrating case study of institution building and entrepreneurship in science shows how a minor medical speciality evolved into a large and powerful academic discipline. Drawing extensively on little-used archival sources, the author analyses in detail how biomedical science became a central part of medical training and practice. The book shows how biochemistry was defined as a distinct discipline by the programmatic vision of individual biochemists and of patrons and competitors in related disciplines. It shows how discipline builders used research programmes as strategies that they adapted to the opportunities offered by changing educational markets and national medical reform movements in the United States, Britain and Germany. The author argues that the priorities and styles of various departments and schools of biochemistry reflect systematic social relationships between that discipline and biology, chemistry and medicine. Science is shaped by its service roles in particular local contexts: This is the central theme. The author's view of the political economy of modern science will be of interest to historians and social scientists, scientific and medical practitioners, and anyone interested in the ecology of knowledge in scientific institutions and professions.

Comets, Popular Culture, and the Birth of Modern Cosmology

Dynamics of Scientific Progress

The Atomic West

Resources in Education

Restructuring Of Physical Sciences In Europe And The United States - 1945-1960, The - Proceedings Of The International Conference

Official Gazette of the United States Patent and Trademark Office