

# History of Physics

NEWSLETTER

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IMAGES FROM  
THE 2014  
APRIL MEETING  
IN SAVANNAH,  
GEORGIA



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## Weart honored with Pais Award

Spencer R. Weart has been awarded the 2015 Abraham Pais Prize for the History of Physics, “for foundational contributions to the intellectual progress, institutional underpinnings, and public impact of the history of physics, from nuclear physics to condensed matter to climate change.”



Christian Bibas

Spencer Weart

Weart has exerted a profound influence on the history of physics. Shaping the field for more than four decades, his outstanding scholarly achievements have opened new perspectives within the history of physics as well as new disciplinary areas of research. The path-breaking analysis presented in *Physics circa 1900* (co-authored with Paul Forman and John L. Heilbron, 1971) remains central to historians’ assessment of the physics discipline.

His foundational studies in nuclear history, *Scientists in Power* (1979) and *Nuclear Fear: A History of Images* (1988, and its follow on *The Rise of Nuclear Fear*, 2012), have tracked the ramifications of the discovery of nuclear fission, defining frameworks within which other historians have long continued to work. As co-author of *Out of the Crystal Maze: Chapters from the History of Solid State Physics* (1992), Weart gave key impulses to a new historiography that has since expanded manifold.

His broad reach across the physical and into the environmental sciences is on view in his book *The Discovery of Global Warming* (2003, expanded edition 2008, now translated into five languages). The clarity, precision, and dispassionate presentation so characteristic of Weart’s scholarly work have enabled it to exert a profound influence in multiple domains: on science education, on the discussion of contemporary policy issues, and on the general public’s perception of physics.

Weart has contributed importantly to defining expectations for the web-based presentation of intellectually rigorous scholarship, as his own website on the history of climate change research displays. Weart’s achievements stand out, moreover, in the context of developing the unique and crucial AIP Center for History of Physics, along with the Niels Bohr Library. Under his thirty-five year leadership, these facilities have not only encouraged, but also in many instances made possible, a broad range of scholarly research and its public presentation across the entire spectrum of the history of physics. Weart has helped lead major projects

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# Weart honored with Pais Award

documenting the development of astronomy, geophysics, lasers, condensed matter, and high-energy physics that have served a host of other researchers.

Along with his role as a researcher and mediator, Weart has had a significant impact, finally, through mentoring a cohort of younger historians.

Weart received a BA in physics from Cornell University in 1963 and a PhD in physics and astrophysics from the University of Colorado, Boulder in 1968. He did postdoctoral work at the California Institute of Technology, supported as a Fellow of the Mount Wilson and Palomar Observatories. He then undertook graduate training in history at the University of California, Berkeley. From 1974 to 2009 Weart directed the Center for History of Physics of the American Institute of Physics and its Niels Bohr Library, institutions dedicated to preserving and making known the history of physics, astronomy, geophysics, and allied fields.

## Upcoming FHP events at the 2015 APS March and April Meetings



Gigantic boots located at the entrance of North Shore Mall in San Antonio, TX.

### APS Meeting, March 2-6

San Antonio, TX

#### • *Inspirational Approaches to Teaching Physics/History of Physics*

Co-sponsored by FHP and FED

Monday, March 2, 2015 • 11:15 a.m. - 2:15 p.m.

**Session Co-chairs:** Catherine Westfall and Randall Knight

*Experts in physics and history of physics education will share ideas on inspiring students about physics and history of physics.*

“The Use of Theater and the Performing Arts in Science Education and the Teaching of History,” Brian Schwartz, Brooklyn College and the Graduate Center, CUNY

“Bruno, Galileo, Einstein: The Value of Myths in Physics,” Alberto A. Martinez, University of Texas, Austin

“Teaching Physics to Future Presidents,” Bob Jacobson, University of California, Berkeley

“Composing Science: Integrating Scientific Inquiry and Writing Instruction,” S. Leslie Atkins, California State University, Chico

“How Things Work: Teaching Physics in the Context of Everyday Objects,” Louis Bloomfield, University of Virginia

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#### • *Pais Prize Session: Physics at the Intersection of History, Technology, and Society*

Co-sponsored by FHP and FPS

Wednesday, March 4, 2015 • 8:00 a.m. - 11:00 a.m.

**Session Chair:** Catherine Westfall

*This session will investigate the relationship physics has maintained with society over the last century and a half, particularly in relation to technological change.*

“Understanding the Impacts of Global Warming: A History,” Spencer Weart, American Institute of Physics

## History of Physics

NEWSLETTER

The Forum on History of Physics of the American Physical Society publishes this Newsletter biannually at <http://www.aps.org/units/fhp/newsletters/index.cfm>. Each 3-year volume consists of six issues.

The articles in this issue represent the views of their authors and are not necessarily those of the Forum or APS.

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# Upcoming Events at the 2015 APS March and April Meetings

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“Burnt by the Sun: Jack Kilby and the ‘70s Solar Boom,”  
Cyrus Mody, Rice University

“Optimistic Dangers: Views of Radium Therapy During  
the American Radium Craze,” Aimee Slaughter, Los  
Alamos Historical Society

“To Rule the Waves: Cable Telegraphy and the Making  
of ‘Maxwell’s Equations’,” Bruce Hunt, University of  
Texas at Austin

“The Social Appropriation of Quantum Language and  
Imagery,” Robert P. Crease, Stony Brook University

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## • *Why Peer Review?*

Organized by Daniel Ucko, Stony Brook University,  
*Physical Review Letters*

Thursday, March 5, 2015 • 8:00 a.m. - 11:00 a.m.

**Session Chair:** Robert P. Crease

*How has peer review developed in scientific publishing,  
what is its value, and are there alternatives?*

“There Is No ‘I’ in Referee: Why Referees Should Be  
Anonymous,” Daniel Ucko, Stony Brook University,  
*Physical Review Letters*

“Validity, Not Dissemination,” Samindranath Mitra,  
*Physical Review Letters*

“Peer-review: An IOP Publishing Perspective,” Tim  
Smith, IOP Publishing

“Inside Nature,” Andrea Taroni, *Nature Physics*

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## • *A Staged Reading of the Play* Background, by *Lauren Gunderson*

Sponsored by FHP

Grand Hyatt San Antonio

Wednesday, March 4, 2015, 8:00 p.m. - 9:30 p.m.

## APS Meeting, April 11-14 Baltimore, MD

### • *Three Perspectives on the Supercollider*

Organized by Michael Riordan

Monday, April 13 • 10:45 a.m. - 12:33 p.m.

**Session Chair:** Michael Riordan

“The Disappearing Fourth Wall: John Marburger, Science  
Policy, and the SSC,” Robert P. Crease, Stony Brook  
University

“DOE Perspectives on the Supercollider,” James Decker,  
Garman, Sullivan & Associates, LLC

“The Demise of the Superconducting Super Collider,  
1989–1993,” Michael Riordan, University of California,  
Santa Cruz

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### • *APS and Public Engagement in Historical Perspective*

Organized by Joseph Martin

Tuesday, April 14 • 10:45 a.m. - 12:33 p.m.

**Session Chair:** Joseph Martin

*The history of the American Physical Society in the sec-  
ond half of the twentieth century, with particular empha-  
sis on the Society’s role in politics and public outreach.*

“The American Physical Society and the Ethics of  
Cold War Science,” Sarah Bridger, Cal Poly History  
Department

“APS Efforts to Defend Human Rights,” Edward  
Gerjuoy, University of Pittsburgh

“The Evolution of the APS Forum on Physics and  
Society,” David Hafemeister, Cal Poly Physics  
Department

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### • *Public Lecture*

Cosponsored by FHP and GGR:

**Saturday, April 11, 2015 • 7:30 p.m. - 8:06 p.m.**

“Einstein’s Legacy: Studying Gravity in War and Peace,”  
David Kaiser, MIT

### • *A Staged Reading of the Play* Transcendence: Relativity and Its Discontents, by *Robert Marc Friedman*

Sponsored by FHP

Hilton Baltimore Inner Harbor

Sunday, April 12, 2015, 8:00 p.m. - 9:30 p.m.

# The Many Worlds of Leo Szilard: Physicist, Biologist, and Peacemaker

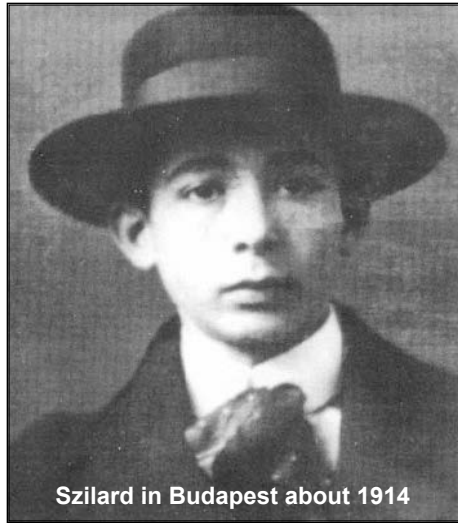
by William Lanouette

At the April 2014 APS meeting in Savannah, a panel honored two notable anniversaries: the 50th of Leo Szilard's death, and the 75th of the Einstein/Szilard letter to President Franklin D. Roosevelt that led to America's development and use of atomic bombs during World War II. "The Many Worlds of Leo Szilard" convened two scientists who knew him with his biographer for talks rich in both professional and personal details.

The session was hosted by MIT physicist Daniel Kleppner, who said Szilard was "one of the most remarkable minds of his generation in the 20th century, and a unique personality in physics. He changed the course of history for the United States and most people do not know very much about him." The panel would rectify that, he said.

William Lanouette, author of *Genius in the Shadows: A Biography of Leo Szilard, the Man Behind the Bomb* (Skyhorse Publishing, 2013), said that although best known for being the first to conceive and patent the nuclear chain reaction in the 1930s, Szilard had other amazing insights in physics and biology, and devised inventive ways to control the A-bomb he helped create.

In physics, Szilard applied entropy to data in a seminal 1929 paper that laid the basis for "information theory." As physicist Richard Garwin noted, "Szilard's path-breaking but initially little-noticed 1929 paper, "On the Decrease of Entropy in a Thermodynamic System by the Intervention of Intelligent Beings" spawned much subsequent research. It connected what we now call a bit of information with a quantity  $k \ln 2$  of entropy, and showed that the process of acquiring, exploiting, and resetting this information in a one-molecule engine must dissipate at least  $kT \ln 2$  of energy at temperature  $T$ . His 1925 paper, "On the Extension of Phenomenological Thermodynamics to Fluctuation Phenomena," [based on his 1922 doctoral thesis] showed that fluctuations were consistent with and predicted from equilibrium thermodynamics and did not depend on atomistic theories. His work on physics and technology, demonstrated an astonishing range of interest, ingenuity, foresight, and practical sense."



Szilard in Budapest about 1914

Garwin also praised Szilard's "several ... fundamental contributions to nuclear physics, to the neutron chain reaction and to nuclear reactors, and also to electromagnetic pumping of liquid metals." Szilard co-designed an electromagnetic refrigerator pump with Einstein in the 1920s. In 1939, he co-designed the first nuclear reactor with Enrico Fermi. And in the early 1940s Szilard thought up and named the nuclear "breeder" reactor – which was cooled using his Einstein/Szilard electromagnetic pump.

"I met Leo Szilard, from 1947 to 1952 at the University of Chicago," Garwin recalled, "where I saw him in the faculty seminar run by Bill Libby, in his lab with Aaron Novick, eventually at dinners, and later, on occasion, in New York or Geneva. I visited Leo in his laboratory at the Institute for Radiobiology and Biophysics, which occupied a new building where I had my office from 1950. There Leo showed me the 'chemostat', an ingenious and powerful tool he had invented and developed with Aaron Novick. I recall Leo's telling me that they had had concern that polyethylene, insulator of high-performance coaxial cables developed during the war, might live forever, immune to degradation by microbes. Apparently, though, they had 'trained' microbes to subsist on polyethylene – had directed the evolution of microbes by manipulating their environment in the chemostat."

Garwin said that "After I had been to Los

Alamos as a consultant for the first of many summers in 1950-52, before moving from the Physics Department at the University of Chicago in December 1952 to the new IBM Watson Scientific Laboratory at Columbia University, at a cocktail party at the home of Mildred and 'Murph' Goldberger, Edward Teller told me of the high regard in which he held Leo Szilard. He said, 'You know the way I use Freddie De Hoffman for calculations at Los Alamos, that is how Leo uses me.' Leo Szilard's ingenuity and inventiveness outclassed those of Edward Teller."

In biology, too, Szilard outclassed his colleagues. Biologist Francois Jacob called Szilard an "intellectual bumblebee" for the many novel ideas he shared, including one that earned Jacob and others the Nobel Prize. Harvard Biologist Matthew Meselson recalled how impatient Szilard was to learn biology, and to bypass the cycle of submitting papers for peer review simply convened the authors to brainstorm over dinner. To do this he created a "Midwestern Phage Group with monthly meetings that included Alfred Hershey, Joshua Lederberg, Salvador Luria, James Watson, and others." (All four were later Nobel laureates.) Meselson pointed out that Szilard's work with the chemostat has generated more than 500 citations in the *Proceedings of the National Academy of Sciences*.

Also of note is that in the famous 1959 "PAJAMO" paper on negative gene control – nicknamed for Arthur Pardee, François Jacob, and Jacques Monod – the authors noted, "We are much indebted to Professor Leo Szilard for illuminating discussions during this work." Jacob, Monod, and André Lwoff won the 1965 Nobel Prize in Medicine for this idea, and when receiving the award in Stockholm Monod said: "This is precisely the thesis that Leo Szilard, while passing through Paris, happened to propose to us during a seminar... I saw that our preliminary observations confirmed Szilard's penetrating intuition, and when he had finished his presentation, my

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**Albert Einstein and Szilard recreate drafting the famous 1939 letter**



doubts about negative gene control had been removed.” An intellectual bumblebee indeed!

“Theoretically I am supposed to divide my time between finding what life is and trying to preserve it by saving the world,” Szilard wrote physicist Niels Bohr in 1950. “At present the world seems to be beyond saving, and that leaves me more time free for biology.” In fact, Szilard never abandoned hope for saving the world by controlling the spread of nuclear weapons, and Meselson emphasized that even before the A-bomb

was dropped on Hiroshima Szilard had tried to stop it. He rallied scientists to lobby for “civilian control” of atomic energy in 1945, attended the first Pugwash Conference on Science and World Affairs in 1957 and influenced many to follow, gaining Soviet Premier Nikita Khrushchev’s personal assent to a Moscow-Washington “Hot Line” during a private meeting in New York City in 1960. And he founded the first political action committee for arms control in Washington in 1962, The Council for a Livable World, which thrives today.

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## **Journeys in the History of Physics: The 2014 Pais Prize Session**

by David C. Cassidy

**T**he 2014 recipient of the Abraham Pais Prize for History of Physics was David C. Cassidy. Joining Cassidy in the Pais Prize session, chaired by Catherine Westfall, were two of Cassidy’s colleagues who have played significant roles in his career. They were Daniel M. Siegel, his dissertation advisor at the University of Wisconsin-Madison, and Brian Schwartz who, in recent years, encouraged and facilitated his development of the play *Farm Hall*.

In his presentation on “Physics, History and Biography,” Cassidy discussed his journey across the frontiers separating each of these fields. Cassidy crossed into history while a graduate student in physics and, with Daniel Siegel’s advice and guidance, completed his dissertation on “Werner Heisenberg and the Crisis in Quantum Theory, 1920-1925.” Cassidy noted that history is not only about what happened in the past but also about why it happened and what it means. Because of this, history provides a richer understanding of the content

*Continued on page 7*

## **Gaining inspiration from Galileo, Einstein and Oppenheimer**

by Catherine Westfall

This stimulating, well-attended session started with a talk by Galileo scholar Paolo Palmieri from the University of Pittsburgh. From him we learned how Galileo inspired a wholly new way to investigate nature. Before Galileo, inquiries into the natural world were neither experimental nor quantitative.

Galileo changed that. He insisted that investigations should be experimental and that reasoning should be guided by mathematics. In the process he showed that a new sort of mathematical physics could be built upon principles arising from experiment, which allowed insights to blossom from uncertain foundations.

The second speaker was physicist Gerd Kortemeyer from Michigan State University who described a course he and I co-taught that took Michigan State undergraduates to Munich, Bern, Berlin, Zurich, Copenhagen, and Göttingen to “walk in the footsteps of Einstein” and learn about the development of quantum mechanics and relativity.

In addition to showing pictures of happy students touring, discussing, hiking, and role playing in gorgeous European locales, Kortemeyer explained how historians and physicists can work collaboratively and productively to teach students to the great advantage to both disciplines. The key strategy is to take every opportunity to engage students in their own learning – through individual study plans, group work, creative exercises, and shrewd use of scenery while constantly providing interdisciplinary information, perspectives and challenges. The final speaker was physicist Cameron Reed from Alma College who explained how the appreciation and teaching of physics can be enriched by historical exploration.

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### The Invention of Mikhail Lomonosov: A Russian National Myth

By Steven Usitalo, *The Invention of Mikhail Lomonosov: A Russian National Myth*, Academic Studies Press, (2013) 298 pages.

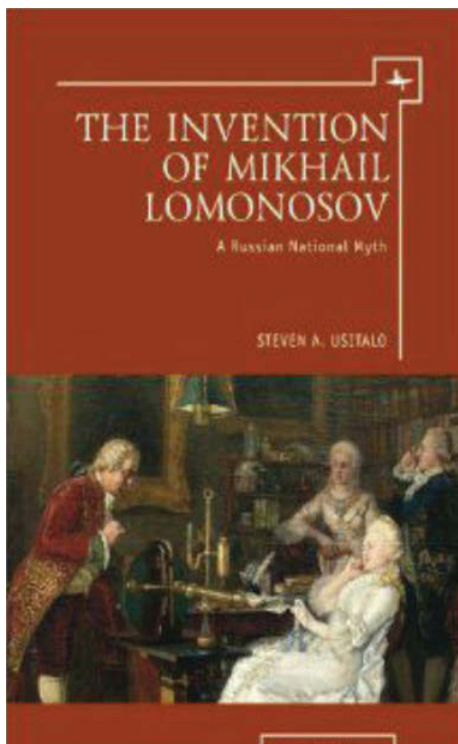
Reviewed by Vladimir D. Shiltsev  
Accelerator Physics Center, Fermilab

Russian polymath Mikhail Vasilievich Lomonosov (1711-1765) is rightfully called the “Father of Russian science” for his tireless promotion of Enlightenment, many outstanding contributions to natural sciences, and the foundation of Moscow University.

Highly praised in Russia but curiously unsung in the West, he deserves a good English biography – hopefully of the type of Robert Massie’s writings on two other dominant Enlighteners of that time, Peter the Great and Catherine the Great. The future biographer of Lomonosov will have plenty of storytelling material, as the life story of the Russian genius had arguably had more events, turns and developments than the combined biographies of several great scientific minds of that turbulent century.

His humble roots, youthful religious dissent and return to Orthodoxy, escape from his father’s home in search of scientific education, serious punishments meted out by unforgiving and harsh Russian authorities, outstanding academic training from preeminent German nature philosophers (intertwined with vagabondage, and windings and debauches with fellow students), illustrious scientific and administrative career after his return to the St. Petersburg Academy of Sciences, projective and path-breaking works in physics, chemistry and astronomy, arduous efforts to transform the Academy and educational system of still backward Russia, a poetic and linguistic genius, courtier maneuvers with top powers and Emperors, a short period of oblivion after the death followed by fast appreciation of his outstanding value to the country—all of this has made Lomonosov so appealing to Russians that for more than two centuries he has been considered Russia’s first scientific genius and the founder of Russian science.

National adoration and worship of Lomonosov were equally supported by both Russian rulers and key cultural figures. Shortly



before his death in 1764 the Empress Catherine the Great visited the ailing scientist at his laboratory in St. Petersburg, where she viewed his mosaic art and “observed physics instruments that he had invented as well as several experiments in physics and chemistry.”

Such august attention to Lomonosov continued after his death in the form of the monarchical protection of his memory; in 1792, for instance, Catherine commissioned sculptor Fedot Shubin to create a bust of Lomonosov which was installed at the Empress Palace among the busts of ancient heroes.

In the 1820’s, Catherine the Great grandsons, Emperors Alexander I and Nicolas I, ordered the design and erection of the first monument to Lomonosov in his native Arkhangelsk. Alexander Pushkin, the greatest Russian poet and key transformational figure not only of the national culture but – as some believe – of the Russian national character as well, wrote that “Lomonosov was a great man.” Pushkin continued,

“Between Peter I and Catherine II, he was the only indigenous champion of enlightenment. He founded our first university; better to say, he *was* our first university;” the Moscow university was named after Lomonosov in 1940. A decade later, Joseph Stalin refused a proposal to rename Moscow State University after himself: “The central university in the country can bear only one name – Lomonosov’s”.

For Russian scientists, Lomonosov was of special value and advergence. Dmitri Mendeleev (1834-1906), inventor of the Periodic Table of elements, wrote in his widely popular textbook *Principles of Chemistry* “in 1742-1744, i.e., 20 years prior to [Roger] Boscovich, Lomonosov expressed his views on the atomic structure of the matter and his ideas are similar to those accepted by most modern chemists and physicists.” Sergei Vavilov (1891-1951), codiscoverer of the Vavilov-Cherenkov effect (Nobel Prize in Physics, 1958), a historian of science and the President of the USSR Academy of Sciences, dedicated a series of articles on Lomonosov’s scientific legacy, singling out his works in optics and discovery of the atmosphere of Venus.

To my knowledge, Usitalo’s study is only the second book in English fully dedicated to Lomonosov as a nature philosopher (there are many more on his legacy in the humanities, history and linguistics). The previous one was a translation of *Russia’s Lomonosov: Chemist, Courtier, Physicist, Poet* (J. E. Thai, E. J. Webster, trans., Princeton U. Press, Princeton, NJ, 1952) written by Russian chemist Boris Menshutkin, son of Mendeleev’s collaborator Nikolai Menshutkin.

Besides that book, a more or less comprehensive scientific biography of Lomonosov could be found in extended texts (dedicated chapters in books) by Alexander Vucinich in *Science in Russian Culture: A History to 1860* (Stanford University Press, Stanford, CA, 1963), Henry M. Leicester in *Mikhail Vasil’evich Lomonosov on the Corpuscular Theory* (Harvard U. Press, Cambridge, MA 1970), and Valentin Boss in *Newton and*

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# Pais Prize Session

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of physics, along with a fuller appreciation of the role of physics and physicists in our broader culture and society. Cassidy did not at first intend to write a biography of Heisenberg, but it soon became the logical next step. Although scientific biography has its limitations as a historical tool, Cassidy learned from the classics of literary biography that scientific biography must put the science and the life at the center of the scientific and cultural life of the subject's era. Only in that way can it illuminate why things happened as they did, and how we might learn from those who confronted important issues and decisions in the past as we confront the difficult issues of our own time.

Crossing, most recently, from science history into the arts with the help of Brian Schwartz, Cassidy discovered that, as he imagined his characters coming alive on stage, he gained valuable new insights into their motivations and behavior at the dawn of the nuclear age. Daniel M. Siegel directed the audience's attention "Toward a Rethinking of the Relativity Revolution," based upon his forthcoming book *Sneaking up on Einstein: The Relativity Revolution, Step by Step*.

Siegel's proposed rethinking would have a profound effect on how we understand the relativity revolution and how we teach the special theory of relativity. In contrast with the traditional view of that revolution as a sudden, discontinuous transition precipitated by Einstein's relativity paper of 1905, Siegel argued that, historically, key aspects of special relativity theory should be seen rather as undergoing a gradual transition through two stages extending over a 50-year period from the early 1880s to the early 1930—much, he suggested, like a two-stage rocket.

The first stage, up to 1905, which Siegel called the protorelativistic phase, involved initial treatments of length contraction,

mass increase, and invariance properties. The second stage, the Einsteinian phase, involved a recasting of the theoretical framework of prerelativistic electrodynamics, which led to the inclusion of time dilation, the mass-energy relation and continuing competition with results from the protorelativistic phase, all concluding in the triumph of Einstein's special theory of relativity by the early 1930s.

Siegel argued further that a proper appreciation of the role of the protorelativistic phase in the relativity revolution provides students with a more concrete approach to understanding relativistic effects. It also provides historians with a new perspective on the roles of continuity and gradualism in seemingly discontinuous scientific changes. Finally it demonstrates the significance of the broader scientific community in even the most individual accomplishments.

Brian Schwartz provided an interesting "Insider's History of Some of the Significant Changes in the APS from the 1960s to Today." Schwartz joined the APS in the 1960s, a period of heated discussions about the role of physics in society fueled by the role of science in the unpopular Vietnam War and the severe overproduction and unemployment of physics PhDs.

At that time the APS governance and meeting structure offered no means to address these and related issues, including education, diversity, communications, international issues, and government policies.

Schwartz was one of the original petitioners for structural change. This led to the forum structure, including the Forum (initially proposed as a Division) on Physics and Society (1969) as well as the Committee on the Status of Women in Physics (1972), the Panel on Public Affairs (1975), and many other APS committees and forums.

The Forum on the History of Physics was founded in 1981, also initially as a division. To his surprise, Schwartz was elected to

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# Gaining inspiration

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Reed employed a number of anecdotes, some tragic, some inspiring, spanning in time from Kepler to the wartime development of the atomic bomb. Reed convincingly concluded that even great physicists are subject to the usual whims of human nature and the sometimes cruel circumstances of their times. Many students attended this session and every talk inspired thoughtful questions and comments.

See the related photo on page 9

# New Books

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*Russia: The Early Influence, 1698-1796* (Harvard U. Press, Cambridge, MA, 1972). Usitalo, as the latter three scholars, is a historian by training and an Associate Professor of History and the Department Chair for History, Sociology, Political Science and Geography at the Northern State University. One can commend his thoroughness, time spent in Russian archives and his commitment to be guided by scientific criteria and search for objective and verifiable knowledge, subject to analysis and generalization.

What was lost in that attempt is "readability" – the book looks more like a kind of extended PhD thesis, with annoyingly numerous distractions (references, footnotes, etc).

Indeed, "erudite and skillfully argued," this book is not an easy, smoothly guided reading at all, as many pages are dominated by footnotes which contain a lot of information of great interest for a dedicated Lomonosov or Russian history scholar.

The main message of the Usitalo's book is laid out in the Introduction: "... Lomonosov's fame has far surpassed any realistic association with the known details of his biography; Lomonosov's monument is the mythology.... Lomonosov is... of interest primarily as a symbolic figure, until recently an extraordinarily resilient one, who over the course of two centuries came to fulfill the tangible intellectual and emotional

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# New Books

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requirement that Russian pride demanded in a national myth.”

Over the following five chapters, however, most of the proofs are judgmental: numerous facts of Lomonosov’s biography and development of his fame come with two types of epithets – those facts which fit the overall concept are combined with phrases like “carefully reasoned,” “authoritative” (book, work, scholar), “convincing,” “compelling,” and similar types of positives, while when discussion comes to something that supports an opposite point of view, the author widely uses phrases such as “exaggerated claims,” “dubious interpretations,” “speculative,” “politically biased,” etc.

Usitalo claims that Lomonosov’s myth originates with his own outstanding “self-fashioning” that can be only excused by that fact that many of Lomonosov’s contemporary greats did the same.

Indeed, Lomonosov was known for his ferocious ambitions and fostered his image in order to recruit support or to advance his projects, but it was mostly done in his private letters to powerful supporters such as the Counts Vorontsov and Shuvalov. That in fact was much more purpose-oriented and innocent compared to, say, Newton’s personal interference into the work of the “independent committee” to refute

Leibniz’s claim to priority in calculus (see, e.g., *The Calculus Wars: Newton, Leibniz, and the Greatest Mathematical Clash of All Time* by Jason Socrates Bardi, Basic Books, 2007), or Franklin’s “kite story.”

The author also claims that Lomonosov’s reputation as a natural philosopher grew exponentially in years following his death as a result of an expanding political need for Russia to have its own scientific hero. The facts do not support this. If one uses Google’s software Ngram Viewer, for instance, to find the frequency of appearances of Lomonosov name as a fraction of the sum total of words published in Russian language books since 1750 (see such a plot, e.g. in “Lomonosov and the Dawn of Russian Science”, *Physics Today*, Feb. 2012), it is clear that Lomonosov’s value in the eyes of Russians remained practically unchanged. Peaks in his popularity in the 1860s and in the 1950s coincide with information campaigns launched in the USSR to popularize science and technology and to pay tribute to Russia’s scientific heritage, but overall these bursts left unaffected Lomonosov’s generally very high level of popularity as “The First Russian scientist.”

The author also fails to convey Lomonosov’s scientific accomplishments. Less than 20 references of the voluminous 440 bibliography items are written by natural science scholars and the lengthier discussions are given to those who are critical of Lomonosov’s achievements rather than to those who appreciated them.

For example, more than 15 pages are dedicated to a short essay, “Lomonosov as a Physicist,” written in 1855 by Nikolai Liubimov (1830-1897) and dwelling on Lomonosov’s weaknesses as a mathematician. Less than a quarter of a page is dedicated to Pyotr Kapitza’s more positive review on the same subject. Very little is said about Liubimov’s credentials (he was not at the forefront of modern science, and not fully aware of the molecular, kinetic theory of gases), and Usitalo does not mention Kapitza’s evaluation of Liubimov’s essay as “...untalented rehash of several of Lomonosov’s works”.

It is a shame that the broader English-speaking scientific community is exposed to interpretations and evaluations of Lomonosov’s works while the works themselves are not widely available in English. Translations of only 14 of his papers on corpuscular theory appeared in Leicester’s monograph cited above. More availability of Lomonosov’s works would help to convey his scientific significance to the international scientific community.

Overall, I believe that Usitalo’s book might be a useful resource for scholars, in the history of science as a comprehensive compendium of facts, but doubt that it will be appealing to the general public. I can recommend reading and perhaps even purchasing this book to historically oriented colleagues in natural sciences, with the warning that the conceptual canvas of this study should be taken with a grain of salt.

## History of Physics

NEWSLETTER

Forum on History of Physics | American Physical Society,  
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Alberto Martinez      Suman Seth  
(*Director CHP*) Gregory Good

#### Newsletter Editor

Robert Crease

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*Co-Chair:* Robert Crease  
Deirdre M. Shoemaker  
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Peter Pesic (for PiP)  
Greg Good (for AIP)  
Diana Buchwald (duplicate), for EPP

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*Chair:* Cathryn Carson      Peter Pesic  
Suman Seth      David Cassidy  
Patrick McCray      Clayton Gearhart

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Brian Schwartz  
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*APS representative,* Ronald Mickens

#### Fellowship Committee

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Adrienne Kolb      Walter Loveland  
Paul Cadden-Zemansky





**PAIS PRIZE SESSION:** Daniel M. Siegel, David C. Cassidy, and Brian Schwartz

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APS governance in 1972. In 1987 Harry Lustig appointed Schwartz APS Education Officer and consultant to MIT on education initiatives. This began a 20-year employment with the APS, during which he ultimately became Associate Executive Officer.

Schwartz recounted his experiences during those years as director of the APS Centennial celebrated in 1999, the controversial move of APS headquarters from New York to College Park, and the establishment of APS News. Since 2005 Schwartz has again taken an active role,

this time as the organizer of well-received conferences on *Copenhagen* and *Dr. Atomic*, cosponsored by APS, and as the producer of science-based plays at APS meetings and in the New York area.



**GAINING INSPIRATION:** Summer Abroad participants at Albert Einstein's summer house in Caputh, 2008. Catherine Westfall is in the yellow shirt up front to the left, Gerd Kortemeyer is in a brown shirt about third row on the right.